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FINAL REMEDIAL INVESTIGATION REPORT VOLUMES 1 OF 2 AND 2 OF 2 FOR INCINERATOR DISPOSAL SITE AND FORMER SKEET RANGE NAS CORPUS CHRISTI TX
7/1/2013
TETRA TECH

Comprehensive **L**ong-term **E**nvironmental **A**ction **N**avy

CONTRACT NUMBER N62467-04-D-0055

Rev. 1
July 2013

Final

Remedial Investigation Report
Volume 1 of 2
Incinerator Disposal Site and Former Skeet Range

Naval Auxiliary Landing Field Cabaniss
Corpus Christi, Texas

Contract Task Order 0135

July 2013

NAVFAC
Naval Facilities Engineering Command
NAVFAC SOUTHEAST
NAS Jacksonville
Jacksonville, Florida 32212-0030

TETRA TECH

FINAL
REMEDIAL INVESTIGATION REPORT
FOR
INCINERATOR DISPOSAL SITE AND FORMER SKEET RANGE

NAVAL AUXILIARY LANDING FIELD CABANISS
CORPUS CHRISTI, TEXAS

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Naval Facilities Engineering Command
Southeast
NAS Jacksonville
Jacksonville, Florida 32212-0030

Submitted by:
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CONTRACT NUMBER N62467-04-D-0055
CONTRACT TASK ORDER 0135

JULY 2013

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CERTIFICATION PAGE
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CERTIFICATION

By affixing my seal to this report, I certify that the data and interpretations represented in the *Remedial Investigation Report, Incinerator Disposal Site and Skeet Range, Naval Auxiliary Landing Field Cabaniss, Corpus Christi, Texas* are true and accurate to the best of my knowledge. I further certify that I am licensed to practice geology in the State of Texas and that it is within my professional expertise to verify the correctness of this information.

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REMEDIAL INVESTIGATION REPORT
Incinerator Disposal Site and Former Skeet Range
NALF Cabaniss, Corpus Christi, Texas

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ABBREVIATIONS AND ACRONYMS

AICUZ	Air Installation Compatible Use Zone
ALS	ALS Environmental
Banks	Banks Information Solutions, Inc.
BERA	Baseline Ecological Risk Assessment
bgs	below ground surface
BIP	Blow-in-Place
CCISD	Corpus Christi Independent School District
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CLEAN	Comprehensive Long-term Environmental Action Navy
COC	Contaminant of Concern
COPC	Contaminants of Potential Concern
CSM	Conceptual Site Model
CTO	Contract Task Order
DoD	Department of Defense
DoT	Department of Transportation
DDESB	Department of Defense Explosives Safety Board
DGM	Digital Geophysical Mapping
DGPS	Differential Global Positioning System
DMM	Discarded Military Munitions
DQO	Data Quality Objective
DPT	Direct Push Technology
EEQ	Ecological Effects Quotients
ELAP	Environmental Laboratory Accreditation Program
ERA	Ecological Risk Assessment
ESS	Explosive Safety Submission
EZ	Exclusion Zone
°F	Degrees Fahrenheit
FCR	Field Change Request
FM	Farm-to-Market
GPS	Global Positioning System
GSA	General Services Administration
GSV	Geophysical System Verification

ABBREVIATIONS AND ACRONYMS, Continued

HET	Harmon Engineering and Testing
HSA	Hollow Stem Auger
IAS	Initial Assessment Study
ID	Inside Diameter
IDW	Investigation-Derived Waste
IVS	Instrument Verification Strip
Katahdin	Katahdin Analytical Services, Inc.
LUCs	land use controls
MC	Munitions Constituents
MDAS	Material Documented as Safe
MDEH	material documented as an explosive hazard
MDL	Method Detection Limit
MEC	Munitions and Explosives of Concern
MEC HA	MEC Hazard Assessment
mg/kg	Milligram per Kilogram
mg/L	Milligrams per Liter
MI	Multi-Increment
mm	Millimeter
MMRP	Military Munitions Response Program
MPPEH	Material Potentially Presenting an Explosive Hazard
MRS	munitions response site
MS	Matrix Spike
MSD	Matrix Spike Duplicate
MSL	Mean Sea Level
NAAS	Naval Auxiliary Air Station
NAD	North American Datum
NALF	Naval Auxiliary Landing Field
NAS	Naval Air Station
NASCC	Naval Air Station Corpus Christi
NAVD88	North American Vertical Datum 1988
NAVFAC SE	Naval Facilities Engineering Command Southeast
NEESA	Naval Energy and Environmental Support Activity

ABBREVIATIONS AND ACRONYMS, Continued

Navy	Department of Navy
NELAP	National Environmental Laboratory Accreditation Program
NOSSA	Naval Ordnance Safety and Security Activity
NOSSAINST	NOSSA Instruction
OB/OD	Open Burning/Open Detonation
OD	Outside Diameter
OLF	Outlying Field
ORP	oxidation/reduction potential
PA	Preliminary Assessment
PAHs	Polycyclic Aromatic Hydrocarbons
PAL	Project Action Limit
PCL	Protective Concentration Level
POC	Point of Contact
PPE	Personal Protective Equipment
PQL	Practical Quantitation Limit
PVC	Polyvinyl Chloride
QA	Quality Assurance
QC	Quality Control
RI	Remedial Investigation
RSD	Relative Standard Deviation
SERA	Screening-Level Ecological Risk Assessment
SI	Site Inspection
SUXOS	Senior UXO Supervisor
SVOC	Semivolatile Organic Compound
TAC	Texas Administrative Code
TAL	Target Analyte List
TCEQ	Texas Commission on Environmental Quality
TCLP	Toxicity Characteristic Leaching Procedure
TCRA	Time-Critical Removal Action
TDS	Total Dissolved Solids
TNRCC	Texas Natural Resource Conservation Commission
TRRP	Texas Risk Reduction Program
Tetra Tech	Tetra Tech, Inc.
UFP-SAP	Uniform Federal Policy Sampling and Analysis Plan
USEPA	United States Environmental Protection Agency

ABBREVIATIONS AND ACRONYMS, Continued

UXO	Unexploded Ordnance
UXOQCS	UXO Quality Control Specialist
UXOSO	UXO Safety Officer
VOC	Volatile Organic Compound
VSP	Visual Sample Plan
WWII	World War II
XRF	X-Ray Fluorescence

1.0 INTRODUCTION

Tetra Tech, Inc. (Tetra Tech) was contracted by the Department of the Navy, Naval Facilities Engineering Command Southeast (NAVFAC SE) to perform a Remedial Investigation (RI) and associated reporting for the Incinerator Disposal Site and former Skeet Range located at Naval Auxiliary Landing Field (NALF) Cabaniss, Corpus Christi, Texas. At the Incinerator Disposal Site, the RI consisted of two distinctly different investigations which were conducted in two phases: a munitions and explosives of concern (MEC) investigation followed by a munitions constituents (MC) investigation. At the former Skeet Range, the RI consisted of only a MC investigation. Figure 1-1 shows the general location of NALF Cabaniss and the locations of the Incinerator Disposal Site and former Skeet Range at NALF Cabaniss. This work was performed under Contract Task Order (CTO) No. 0135 under the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract No. N62467-04-D-0055.

This RI report presents the results of investigative, sampling, and analytical activities for the MC investigation at both sites. The results of previous investigative activities are also presented.

1.1 PROJECT OVERVIEW

The Department of Defense (DoD) has established the Military Munitions Response Program (MMRP) to address MC and (MEC) at closed ranges. The DoD is following the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) process for the investigation and remediation of these sites. The Navy is responsible for implementing the MMRP at NALF Cabaniss.

The first phase of the RI at the Incinerator Disposal Site consisted of the MEC investigation and included a detector-aided surface survey for MEC along transects across the investigation area, followed by a subsurface geophysics investigation, an intrusive investigation of resulting anomalies, and limited removal actions. The results of the MEC investigation are included in the After Action Report, a separate stand-alone document, and are summarized in this RI report. The second phase of the RI at the Incinerator Disposal Site consisted of the MC investigation.

The MC investigation at the Incinerator Disposal Site and former Skeet Range was conducted to determine the presence and extent of MC contamination in surface and subsurface soil, and groundwater and to gather and compile data to support recommendations for site closure or corrective action. The MC RI consisted of drilling of soil borings, installation of temporary groundwater monitoring wells, collection and laboratory analysis of surface and subsurface soil samples and groundwater samples, land surveying of sample locations, and reporting of results. The results of the MEC investigation were used in conjunction with the Site Inspection (SI) results to determine RI MC sampling locations at the Incinerator Disposal Site.

1.2 FACILITY BACKGROUND

1.2.1 Facility Location

NALF Cabaniss is located on the eastern side of Nueces County, Texas, and lies approximately 8 miles west of Naval Air Station Corpus Christi (NASCC). The installation is immediately bounded on the east by Brezina Road, on the west by Ayers Street and Farm-to-Market (FM) 286, on the north by Saratoga Road, and on the south by Oso Creek. The installation encompasses a total of 923 acres and lies just outside the corporate bounds of the city of Corpus Christi. The installation boundary area includes Air Installation Compatible Use Zone (AICUZ) lands that extend northwest and southeast from the main acreage of the installation. These AICUZ lands are Navy property acquired to encompass noise zones and Accident Potential Zones in the event an accident were to occur on approach to or departing from the runways at NALF Cabaniss. NALF Cabaniss is bounded to the south by Oso Creek, a perennial water body that ultimately flows into Oso Bay. Beyond Oso Creek are agricultural and industrial properties. The area east of the installation is composed of mixed agricultural, industrial, and residential areas. North of the current boundary are former buildings and recreational areas that were once a part of the installation. These areas were transferred to the General Services Administration (GSA) for disposal in 1958, and are now the property of the local school district. Residential zones lie beyond these buildings to the north. A former landfill is located directly west of the installation.

1.2.2 Facility Description

NALF Cabaniss is an outlying field (OLF) with the current primary role of supporting Naval air training operations originating from NASCC. NASCC, home to the Chief of Naval Air Training, maintains and operates facilities and provides services and material to support the operations of the aviation facilities of the Naval Air Training Command and other tenant activities. The general command assignment is pilot training, primarily focusing on primary and intermediate flight maneuvering and traffic pattern operations.

NALF Cabaniss is located 8 miles west of NASCC. The installation was originally constructed with four 5,000-foot runways; however, only two runways, oriented in north/south and northwest/southeast directions are presently active and maintained. Training Air Wing FOUR, based at the main installation, performs touch-and-go landing training between the main installation, NALF Cabaniss, and NALF Waldron which is 3 miles south of NASCC. The airfield is lighted to allow for night flight training in addition to the routine daylight training.

The unpaved areas of NALF Cabaniss are covered with tall grasses, shrubs, trees, and other low-lying vegetation. Grasses and other vegetation near the operational runways are maintained through periodic mowing in support of flight training operations.

1.2.3 Facility History

In December 1938, the Navy recommended the Flour Bluff area south of Corpus Christi Bay as a potential site for the construction of a new aviation training station. Construction began June 30, 1940, and the installation was officially commissioned on March 12, 1941.

As an auxiliary station, Naval Auxiliary Air Station (NAAS) Cabaniss Field was outfitted with landing fields, runways, hangars, shops, barracks, a mess hall, and a recreational center. With the main installation and the six auxiliary fields, NASCC became the Navy's largest air training center during World War II (WWII). Following the conclusion of WWII, NASCC's mission was reduced to include only primary and instrument flight training. As a result, NAAS Cabaniss Field was temporarily decommissioned (1947), along with Naval Air Station (NAS) Kingsville, NAAS Rodd, and NAAS Waldron. The start of the Korean War in 1950 marked an increase in flight training at NASCC. NAS Kingsville, NAAS Cabaniss, and NAAS Chase Fields were also re-opened to support the increased training mission. In 1958, NAAS Cabaniss Field was converted from an auxiliary air station, which required personnel housing and support facilities, to an OLF, which required only the landing field property. As a result, approximately 346 acres in the northern section of the installation were determined to be excess and given over to the GSA for disposal. This portion of the property was composed mainly of administrative and housing facilities; there was no known use of munitions within this portion of the installation. The installation was commissioned as a NALF in June 1969. NALF Cabaniss is currently in use as an OLF for primary flight training out of NASCC. Current flight training includes touch-and go, night training, and other student training operations.

1.3 INCINERATOR DISPOSAL SITE

1.3.1 Site Location and Description

The Incinerator Disposal Site was located in the southern portion of the installation, 750 feet southwest of the eastern end of Runway 31 and bounded to the south by Oso Creek. Figure 1-1 shows the location of the Incinerator Disposal Site at NALF Cabaniss. Perimeter Road runs along the western and northern boundary of the site. The site is covered in dense vegetation, with open sections of wetlands on the south end near Oso Creek. The site was a former sanitary landfill that also contained a boiler used to incinerate confiscated drug material, small arms, and ordnance items. Although its exact dimensions are unknown, the site may have occupied 17 acres.

1.3.2 Site History

A February 1984 Initial Assessment Study (IAS) for the Naval Energy and Environmental Support Activity (NEESA) identified the Incinerator Disposal Site, located in a former sanitary landfill southwest of Runway 31, which was used to incinerate small arms and ordnance items. The ultimate disposition of the ash and debris generated from the burning operations is not known.

The IAS report indicated that the Army had used an 8-foot long by 5-foot diameter boiler for the incineration of "small ordnance items," including .30 and .50 caliber small arms, flares, explosive cartridges from ejection seats, and "possibly 80 mm rockets" (likely 2.75-inch rockets) at a 6-acre sanitary landfill facility. The report also indicated that the City of Corpus Christi also burned confiscated drug material in the boiler, that operations at the site ceased by 1980, and that "burned remains of ordnance cover an area less than 200 square feet." No confirmation study of the site was recommended in the IAS, "since only innocuous materials were disposed at this site and only limited residual was generated from ordnance burning."

In 2005, Malcolm Pirnie, Inc. conducted a Preliminary Assessment (PA) of the former Incinerator Disposal Site at NALF Cabaniss. During the PA, information collected indicated that munitions had been buried in or near an old sanitary landfill at NALF Cabaniss; however, a map showing the general location of the landfill did not provide specific burial locations.

No property records were found describing the opening, operations, closure, or demolition of the 6-acre sanitary landfill or incineration site. The period of time that the area was used for munitions incineration is unknown. Aerial photographs indicate that the site was disturbed as early as 1942, and an area identified as "sanitary fill" appears on the Master Shore Station Development Plan as early as 1958. No aerials or plans were available for the period during which the boiler was used. The site is not currently used for any military purpose, and the area is covered in dense vegetation. Land use in the area is designated as open space. Land use is not expected to change.

There are no currently operating ordnance/munitions storage facilities at NALF Cabaniss.

1.3.3 Previous Investigations

This section provides an overview of previous investigations conducted at the Incinerator Disposal Site. Relevant analytical results are further summarized in Section 4.0. For specific details regarding each of the investigations listed below, refer to the original documents.

An IAS was conducted in 1984 by Harmon Engineering and Testing (HET) for NEESA (HET, 1984). The IAS identified the Incinerator Disposal Site, located in a former sanitary landfill southwest of Runway 31, which was used to incinerate small arms and ordnance items.

In 2005, Malcolm Pirnie, Inc. conducted a PA of the former Incinerator Disposal Site at NALF Cabaniss. The PA report summarized the history of munitions use for two former ranges at the NALF Cabaniss: the Skeet and Pistol Range and the Incinerator Disposal Site (Malcolm Pirnie, 2005). The PA provided an assessment of the conditions with respect to MEC and MC. During the PA, MEC and MC were observed at two discrete locations at the former Incinerator Disposal Site. Because of the known historical operations and the observation of multiple areas of thermally treated munitions scrap at the former Incinerator Disposal Site, the report noted that the possibility existed for similar areas of munitions scrap to be present across the area. The PA report also concluded that MEC and MC are suspected to be present at other locations within the former Incinerator Disposal Site.

A Time-Critical Removal Action (TCRA) to address MEC was conducted in 2008 by Tetra Tech prior to performing the MC SI. The TCRA was limited to a detector-aided surface survey to allow for surface clearance of MEC along Perimeter Road. The clearance was performed in order to mark safe pathways through the area for mowing crews, security patrols, and others who pass along Perimeter Road. A full (100 percent) detector-aided survey was conducted on these limited areas. A total of four detonation shots were needed to destroy the MEC items discovered on-site, so that the MEC hazards to personnel passing near or through the area were removed or reduced. The results of the TCRA are presented in the After Action Report (Tetra Tech NUS, 2009a).

Following the TCRA, a limited detector-aided surface survey was conducted in order to delineate the extent of surface MEC along pre-determined transects. The detector-aided surface survey was conducted by the Unexploded Ordnance (UXO) Team along sixteen 800-foot north-to-south transects extending from Perimeter Road to Oso Creek to locate MEC and Material Potentially Presenting an Explosive Hazard (MPPEH) on the surface, and to identify areas for possible follow-on geophysical mapping of subsurface anomalies. All items discovered during the detector-aided surface survey were left in place. The results of the detector-aided surface survey are also presented in the After Action Report (Tetra Tech NUS, 2009a).

A MC SI was conducted by Tetra Tech at the Incinerator Disposal Site in April and May 2008 following the TCRA and detector-aided surface survey. The SI consisted of: the collection and laboratory analysis of surface soil, groundwater, surface water, and sediment samples; land surveying of sample locations; and reporting of results. Two soil borings were advanced using direct push technology (DPT) to determine subsurface lithology, geotechnical parameters and depth to groundwater. Subsurface soil samples were not collected for laboratory analysis. Temporary monitoring wells were installed to determine subsurface lithology and collect groundwater samples to determine the groundwater resource classification. UXO Technicians were on site during the SI MC investigation and sampling event to conduct UXO avoidance activities.

Analytical results from the SI indicated that MC (specifically, metals) were detected in surface soil at concentrations exceeding risk-based regulatory screening criteria [i.e., Texas Risk Reduction Program (TRRP)] human health criteria]. Measured surface water and sediment concentrations were less than the applicable TRRP human health or ecological criteria. Results of the SI are presented in the SI Report for the Incinerator Disposal Site (Tetra Tech NUS, 2009b).

A summary of the SI soil analytical results are presented with the RI analytical results in Section 4.0.

1.4 FORMER SKEET RANGE

1.4.1 Site Location and Description

The former Skeet Range is located in the southeastern corner of the installation, 1230 feet southeast of Runway 31 and 400 feet north of Oso Creek. Figure 1-1 shows the location of the Skeet Range at NALF Cabaniss. A former drainage ditch lies to the west of the former range, while another drainage canal currently intersects the eastern end of the former range area. The area surrounding the former range is open and covered in vegetation.

1.4.2 Site History

The former Skeet Range was originally constructed in 1942 through 1943. Initially, the site contained one skeet range firing area composed of two large firing arcs for skeet shooting, three smaller firing arcs for trap shooting, and an armory. Wood-frame “high” and “low” skeet houses were positioned at the end of each skeet firing arc, which measured approximately 148 feet in length. The trap firing arcs present on the east side of the range were smaller in size than the skeet firing arcs (approximately 82 feet in length), and had trap houses centered in the middle of each firing arc. By January 1944, an additional skeet firing arc was added on the western side of the skeet range. All firing arcs faced to the southwest toward the installation boundary and Oso Creek. WWII-era skeet and trap ranges were typically constructed with five firing positions per firing arc.

Station records and aerial photographs indicate the skeet range was expanded in 1943 through the addition of the pistol range to the west. The two ranges were connected by a road and sidewalk. The pistol range was located 200 feet west of the skeet range and consisted of 15 firing positions facing to the southwest towards an earthen target butt positioned 50 yards from the end of the firing area. Pistol ranges were typically constructed with firing lines located 10 feet, 25 feet, and 50 feet from the target area.

The Skeet Range was generally used for small arms qualification and moving target orientation training for Naval aviators, although the ranges may have also been used for recreational purposes. Ammunition used at the site likely included: 12-, 16-, and 20-gage and .410 caliber shotgun munitions; and other small caliber ammunition [e.g., .22 caliber, .38 caliber, .45 caliber, 9-millimeter (mm)] which were likely used at the range for pistol training purposes. The armory associated with the former Skeet Range is no longer present at the installation, and the date of decommissioning is not known. The former small arms magazine remains in place in an open field east of a drainage canal on property no longer owned by the installation. The Skeet range was demolished between 1958 and 1964.

Historical documentation (station documents and drawings) and NASCC personnel indicated that no other explosives or munitions were used at the site and that the site was not used for any other purposes.

1.4.3 Previous Investigations

This section provides an overview of previous investigations conducted at the former Skeet Range. Relevant analytical results are further summarized in Section 5.0. For specific details regarding each of the investigations listed below, refer to the original documents.

In 2005, Malcolm Pirnie, Inc. conducted a PA of the Skeet Range and Pistol Range at NALF Cabaniss. The PA report summarized the history of munitions use at the Skeet Range and Pistol Range, and provided an assessment of the conditions with respect to MEC and MC (Malcolm Pirnie, 2005).

The PA report concluded that based upon historical operations and visual observations, the 12.5-acre former Skeet Range and Pistol Range were used for small arms qualification training of installation personnel, moving target orientation for Naval aviators, and likely for recreational purposes. Historical documentation (station documents and drawings) and NASCC personnel indicated that no other explosives or munitions were used at the sites and that the sites were not used for any other purpose. There was no evidence of MEC at the Skeet Range or Pistol Range. Based on historical operations at the site, the PA report concluded it is possible for MC contamination to exist in surface soil at the Skeet Range and Pistol Range, and in surface water and sediments within Oso Creek.

A SI was conducted by Tetra Tech in 2008 to determine the presence and approximate lateral extent of MC contamination present in surface water, surface soil, and sediment at the Skeet Range and Pistol Range. The SI consisted of: the collection of surface soil, surface water, and sediment samples;

laboratory analysis of surface soil samples, surface water and sediment samples; land surveying of sample locations; and reporting of results.

Two soil borings were advanced using DPT to determine subsurface lithology, geotechnical parameters, and depth to groundwater. Subsurface soil samples were not collected for laboratory analysis. Temporary monitoring wells were installed to determine subsurface lithology and collect groundwater samples to determine the groundwater resource classification. UXO Technicians were on site during the SI MC investigation and sampling event to conduct UXO avoidance activities.

Analytical results from the Skeet Range indicated that MC [specifically polycyclic aromatic hydrocarbons (PAHs)] were present in surface soil at concentrations exceeding risk-based regulatory screening criteria (i.e., TRRP human health criteria). Analytical results for surface water and sediments were less than the applicable TRRP human health or ecological criteria. Analytical results from the Pistol Range were less than the applicable TRRP human health criteria. The Texas Commission on Environmental Quality (TCEQ) agreed that no further action was required at the Pistol Range. Results of the SI are presented in the SI report for the Skeet Range and Pistol Range (Tetra Tech NUS, 2009c).

A summary of the SI soil analytical results are presented with the RI analytical results in Section 5.0.

During brush clearing operations to allow for surface soil sampling at the Skeet Range during the SI, one MEC item was discovered. The item, a smoke cartridge, was inspected by UXO technicians, left in place, and reported to NASCC and Naval Ordnance Safety and Security Activity (NOSSA) personnel. The discovery of the MEC item lead to a change in the Explosive Safety Submission (ESS) Determination for the site. UXO avoidance was added to the former Skeet Range site investigation for the safety of sampling crews. UXO technicians were on site during the MC SI and RI to support the field crews with UXO avoidance activities.

1.5 REPORT ORGANIZATION

The purpose of this RI report is to present the results of the activities conducted by Tetra Tech during the second phase of the RI at the Incinerator Disposal Site and former Skeet Range in 2010 and 2011.

This RI report contains the following sections:

1.0 – Introduction
2.0 – Physical Characteristics of the Study Area
3.0 – Remedial Investigation Activities
4.0 – Remedial Investigation Results – Incinerator Disposal Site

5.0 – Remedial Investigation Results – Skeet Range

6.0 – Contaminant Fate and Transport

7.0 – Baseline Risk Assessment

8.0 – Screening-Level Ecological Risk Assessment

9.0 – MEC Geophysical Investigation

10.0 – Conclusions and Recommendations

11.0 – References

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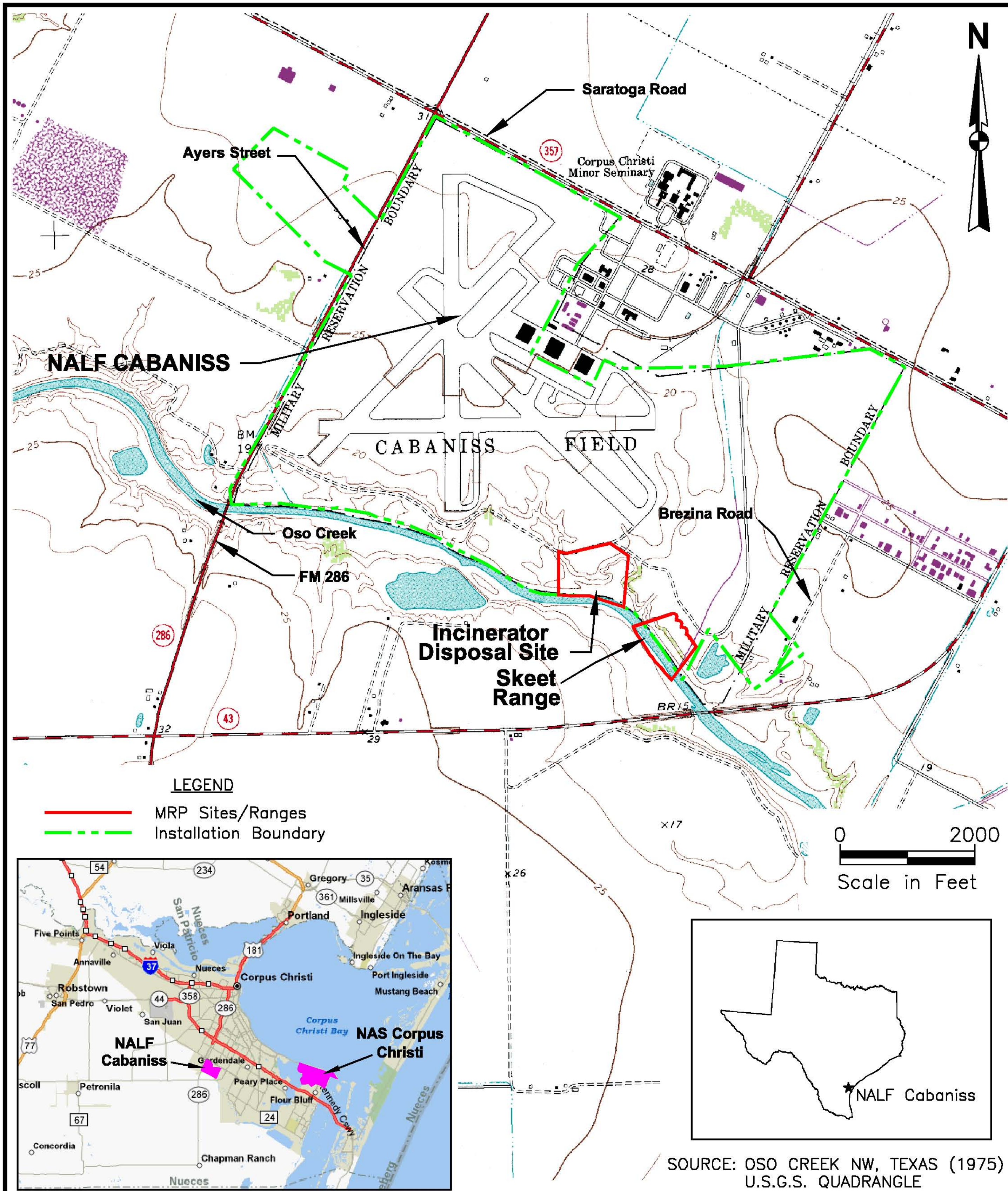

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REVISED BY	DATE	
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NAVFAC

AREA LOCATION MAP
NALF CABANISS
CORPUS CHRISTI, TEXAS

CONTRACT NO. 112G01821	
OWNER NO. 0135	
APPROVED BY	DATE
DRAWING NO. FIGURE 1-1	REV. 0

2.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

The following sections provide a brief description of the physical characteristics of the Incinerator Disposal Site and former Skeet Range at NALF Cabaniss. Figure 1-1 shows the general location of NALF Cabaniss and the locations of the Incinerator Disposal Site and former Skeet Range. Figure 2-1 shows the Incinerator Disposal Site at NALF Cabaniss. Figure 2-2 shows the former Skeet Range at NALF Cabaniss.

2.1 REGIONAL CLIMATE

The climate at NALF Cabaniss is a moderate to semi-tropical marine climate with hot, humid, breezy summers and mild winters. The wind direction is predominantly from the southeast during the warmer months and from the northwest and north during periods of higher pressure and cold fronts during cooler months. Average low and high temperatures are 51 degrees Fahrenheit (°F) (January) and 92°F (July and August), respectively. The number of clear days averages 114 days per year. Annually, there are more than 100 days of high temperatures of 90°F or higher, and fewer than seven days of low temperatures at or below 32°F. Annual rainfall average is 33.4 inches.

2.2 REGIONAL AND SITE GEOLOGY

Regional Geology

The coastal plain of the Corpus Christi area is underlain by Pleistocene river, delta, and shoreline sediments deposited during the interglacial periods. NALF Cabaniss is underlain by the Beaumont Formation, characterized by barrier islands and beach deposits composed of fine-grained sands. Numerous pimple mounds and poorly defined relic beach ridges characterize the land surface. Locally active sand dunes are present in undisturbed areas. The barrier island and beach deposits of the Beaumont Formation are typically less than 60 feet thick. Other stratigraphic units, in order of increasing age, include the Montgomery Formation, Lissie Formation, Willis Formation, and the Goliad Sand. Figure 2-3 is a geologic map of the area.

Site Soil

NALF Cabaniss is underlain by Victorian Association soils. The Victoria series soils are dark, clayey sand, calcareous, crumbly soils that are referred to as blackland. These soils are deep, nearly level, and have developed over clayey materials of the coastal terrace. The soils exhibit very slow internal drainage when wet, and crack to depths of several feet when dry. Surface drainage from these soils flows into Oso Creek to the south of the installation.

Site Geology

The site-specific geologic setting was determined by the examination of drill cuttings and core samples from soil borings. Boring log data presented in Appendix A provide a detailed description of the lithologies encountered. Figure 2-4 depicts the trace of the cross-section lines at the former Incinerator Disposal Site and Skeet Range. Figure 2-5 is a cross-section depicting the interpolated geology beneath the Incinerator Disposal Site. Figure 2-6 is a cross-section depicting the interpolated geology beneath the former Skeet Range.

In general, the site geologic section consisted of an upper fine-grained unit and a lower coarse-grained unit. The lower coarse-grained unit contained the first zone of saturated material. The upper fine-grained unit consisted of a gray to tan with depth, lean clay with a varying amount of admixed silt. The silt content generally increased with depth. Caliche nodules were present in the upper portions of the section. The thickness of the unit was between 5 and 18 feet.

The lower coarse-grained unit was the first unit in which saturated sediments were encountered. The contact between the upper fine-grained unit and lower coarse-grained unit was generally well defined. The lower coarse-grained unit consisted of a gray to tan very fine grained silty sand. In the soil borings at the Incinerator Disposal Site, a tan hard clay was encountered beneath the saturated sand. At the Skeet Range, a tan hard clay was also seen, but the lithology was more varied with interbedded layers of sand and clay. Because the borings were terminated in the lower unit, the true thickness of the lower zone was unable to be determined.

2.3 TOPOGRAPHY AND SURFACE WATER HYDROLOGY

Topography

The general topography of the mainland areas of Nueces County around Corpus Christi Bay can be described as a low-lying coastal area consisting of flat coastal prairies, chaparral pastures, and farmland. Elevations range between 15 and 30 feet above mean sea level (MSL). The topographic profile of NALF Cabaniss is generally flat with a mean elevation of 30 feet above MSL, with some steep downward slopes near Oso Creek.

Surface Water

Surface water resources at NALF Cabaniss include open drainage ditches, which drain south and southeast into Oso Creek. The eastern-most drainage ditch intersects the Skeet Range near the former locations of the armory and trap arcs. An abandoned drainage ditch was present west of the former range, but does not currently contain water. An unnamed pond associated with the former Sewage Disposal Plant is present 100 feet southeast of the NALF Cabaniss property.

Oso Creek forms the southern border of NALF Cabaniss. Oso creek is listed as Segment 2485A in the Texas Water Quality Inventory. It is an unclassified tidal stream with water body uses listed as aquatic life, contact recreation, and fish consumption. Oso Creek empties into Oso Bay, Corpus Christi Bay, and ultimately the Gulf of Mexico.

Freshwater and brackish water jurisdictional wetlands have been delineated at NALF Cabaniss, primarily concentrated at the southern end of the installation along Oso Creek. The wetlands at NALF Cabaniss cover a total area of 28.2 acres.

2.4 GROUNDWATER HYDROGEOLOGY

The sites are underlain by low permeability clays, which causes the majority of precipitation to run-off with only a small percentage recharging the groundwater. The regional aquifer, the Gulf Coast Aquifer, is predominantly sandy material overlying a clay zone with low permeability. Regional groundwater flow in the Corpus Christi area is generally to the northeast towards the Corpus Christi Bay and ultimately the Gulf of Mexico; local flow paths at NALF Cabaniss are unknown. Artesian aquifers located 250 to 2,800 feet below ground surface (bgs) in the Corpus Christi area are moderately to highly saline, and have limited potential use. Therefore, potable water for the NALF Cabaniss and the City of Corpus Christi is supplied from Lake Corpus Christi, 38 miles to the northwest of the field.

As discussed previously, the lower-coarse grained unit was the zone in which saturated materials were first encountered. Groundwater at the site appears to be under water table to slightly semi-confined conditions as water was measured in some wells at a higher level than was encountered during drilling. Depth to static groundwater was measured at approximately 6 to 15 feet bgs in the three temporary wells installed at the former Incinerator Disposal Site. Depth to static groundwater was measured at approximately 18 to 19 feet bgs in the three temporary monitoring wells installed at the Skeet Range. Groundwater gauging data for the former Incinerator Disposal Site and the Skeet Range are presented in Tables 2-1 and Table 2-2, respectively.

Groundwater flow is generally to the south towards Oso Creek. Figure 2-7 is a groundwater contour map depicting flow across the site.

Groundwater samples collected during the RI were analyzed for totals dissolved solids (TDS) in order to determine the groundwater resource classification of the first encountered groundwater at the site in accordance with the TCEQ Groundwater Classification regulatory guidance document (TCEQ, 2010a). Groundwater samples were collected from the first encountered groundwater in the six temporary monitoring wells installed during the RI. The TDS analytical results ranged from 5,700 milligrams per liter (mg/L) to 55,000 mg/L. The arithmetic mean of the six samples collected from the first encountered groundwater bearing unit is 26,616 mg/L. This TDS concentration is greater than 10,000 mg/L, and thus classifies the groundwater at the site as a Class 3 resource. Class 3 groundwater resources are not considered usable as drinking water and are not subject to groundwater ingestion Protective Concentration Levels (PCLs). Rather, Class 3 groundwater is subject to the $^{GW}GW_{Class\ 3}$ PCL, which is equal to 100 x $^{GW}GW_{Ing}$ (TCEQ, 2010a).

A water well search was conducted to identify registered water wells within a 0.5-mile radius of the sites. One registered water well was identified in the water well survey. A water supply well (83-21-5) is located approximately 700 feet south of the site on the opposite bank of Oso Creek. The well was completed in 2000, has a total depth of 205 feet, and is slotted from 175 to 205 feet bgs (Banks, 2011). The water well report is included as Appendix B. Based on the screened interval of this water well compared to the initial groundwater encountered at the Incinerator Disposal and former Skeet Range sites, and the horizontal distance from the sites being investigated to the water well, it appears that the water well is not connected hydraulically to the first encountered groundwater at NALF Cabaniss.

2.5 LAND USE

NALF Cabaniss is located on the eastern side of Nueces County, Texas, and lies approximately 8 miles west of NASCC. The sites covered in this RI are located on the southeast corner of NALF Cabaniss. The Incinerator Disposal and former Skeet Range sites are bounded to the south by Oso Creek, a perennial water body that ultimately flows into Oso Bay.

The Incinerator Disposal Site is closed and no longer in use. The area is not currently used for any specified purpose, and land use is currently designated as open space. The area where the site is located is currently overgrown with dense vegetation dominated by trees exceeding 20 feet in height. The boiler and metal ladder structure remain in place.

The former Skeet Range is closed and no longer in use, and the area in which the former range is located is currently designated as open space. All of the structures and berms (target butts) associated with the ranges have been demolished, and the land is not currently used for any specified purpose. The area where the range was located is currently overgrown with vegetation (tall grasses and copses of shrubs, trees, and other low-lying vegetation), and there is no visual evidence of the former structures associated with the range (e.g., no ground scarring or concrete).

The Incinerator Disposal Site and former Skeet Range are located within the flightline control area of NALF Cabaniss. Visitors to areas within the flightline control zone require escorts and approval from Air Operations. However, operations in the vicinity of the Incinerator Disposal Site and former Skeet Range are typically limited and may include activities such as maintenance (occasional mowing).

The property located across Oso Creek from the Incinerator Disposal Site and former Skeet Range is currently used for industrial purposes. The area east of the range beyond the installation boundary consists of a mix of agricultural, industrial, and residential areas.

NALF Cabaniss is used only to support air training operations out of NASCC, and there are no plans for further development at the installation. The close proximity of the Incinerator Disposal Site and former Skeet Range to an active runway, and the lack of development in the area likely preclude the construction of new facilities, and place restrictions on new and existing operations. Thus, development in the area of the Incinerator Disposal Site and the former Skeet Range is unlikely in the future.

2.6 ECOLOGY

Vegetation in the NALF Cabaniss area consists primarily of tall grasses and copses of shrubs, trees, and other low-lying vegetation. Original vegetation at the site likely consisted of mid- to tall grass in prairie grassland with minimal tree coverage. However, agricultural use and later development of the installation have left no native grasslands and natural vegetation; only disturbance-related species remain.

Approximately 70 percent of the study area was heavily vegetated with a mix of upland woody shrubs and small trees typical of early to mid-successional woodlands in the southern plains. An open, emergent marsh occupied approximately 20 percent of the eastern and southern sections of the sites. The remaining land consisted of a riparian woodland present along Oso Creek, and the stormwater diversion channel that flowed along the eastern edge of the Skeet Range.

Based on the Natural Resources Management Plan for NASCC and OLF, fauna include large mammals such as deer, small mammals such as rabbits, reptiles/amphibians, and bird species. No federally listed threatened or endangered species are known to occur on or near the site (Navy, 2006). However, there are several state protected species that may be present at NALF Cabaniss. A discussion of the rare, threatened, and endangered flora and fauna known historically from Nueces County that have the potential to be found on NALF Cabaniss is presented in the Natural Resources Management Plan (Navy, 2006).

An ecological survey report describing the flora and fauna observed at the Incinerator Disposal Site and former Skeet Range during the RI field investigation in Spring 2011 is presented in Appendix C.

TABLE 2-1

GROUNDWATER GAUGING DATA
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1

Monitoring Well	Top of Casing (ft msl)	Screened Interval (ft msl)			Date	Depth to Water [1] (ft below top of casing)	Depth to Water (ft below ground surface)	Groundwater Elevation (ft msl)
IC MW-1	19.07	2.22	to	-7.78	9/20/2011	Well Installed		
					9/24/2011	17.70	14.85	1.37
					9/24/2011	Well Abandoned		
IC MW-2	9.29	3.25	to	-6.75	9/20/2011	Well Installed		
					9/24/2011	8.61	6.57	0.68
					9/24/2011	Well Abandoned		
IC MW-3	9.44	2.42	to	-7.58	9/21/2011	Well Installed		
					9/24/2011	8.94	5.92	0.50
					9/24/2011	Well Abandoned		

Notes:
1 - Depth to water measurements taken from the top of the riser.
bgs - below ground surface
NA - Not Available or Applicable (i.e., abandoned, not installed, not measured)
ft - feet
msl - mean sea level

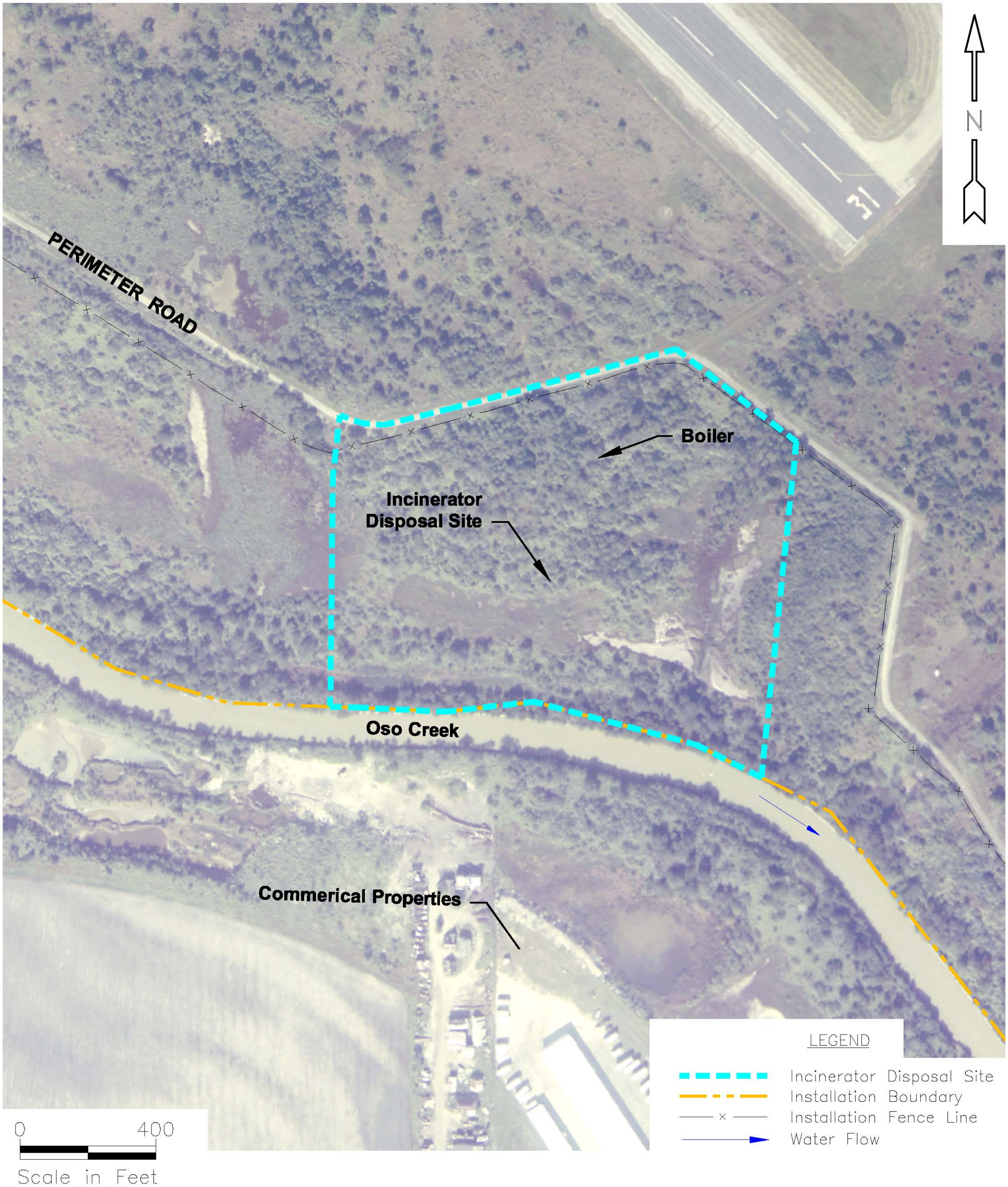
TABLE 2-2

GROUNDWATER GAUGING DATA
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Monitoring Well	Top of Casing [1] (ft msl)	Screened Interval (ft msl)			Date	Depth to Water [1] (ft below top of casing)	Depth to Water (ft below ground surface)	Groundwater Elevation (ft msl)
SR MW-1	21.50	-0.38	to	-10.38	9/21/2011	Well Installed		
					9/24/2011	20.70	18.82	0.80
					9/24/2011	Well Abandoned		
SR MW-2	22.43	-10.28	to	-20.28	9/21/2011	Well Installed		
					9/24/2011	20.44	17.73	1.99
					9/24/2011	Well Abandoned		
SR MW-3	21.40	-0.48	to	-10.48	9/21/2011	Well Installed		
					9/24/2011	20.50	17.62	0.90
					9/24/2011	Well Abandoned		

Notes:
1 - Depth to water measurements taken from the top of the riser.
bgs - below ground surface
NA - Not Available or Applicable (i.e., abandoned, not installed, not measured)
ft - feet
msl - mean sea level

00356SMFIG2-1.dwg 1-30-12 GS



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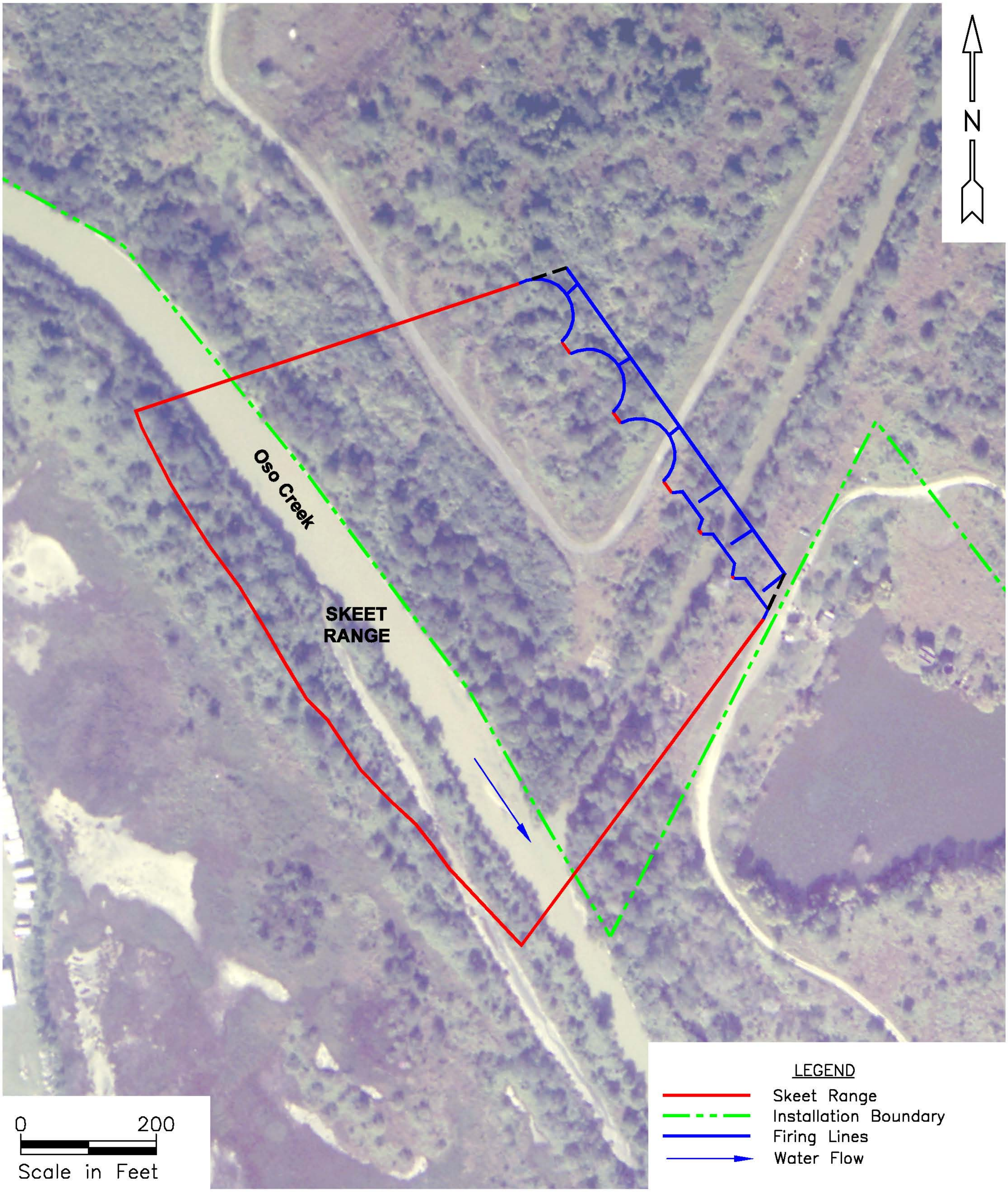
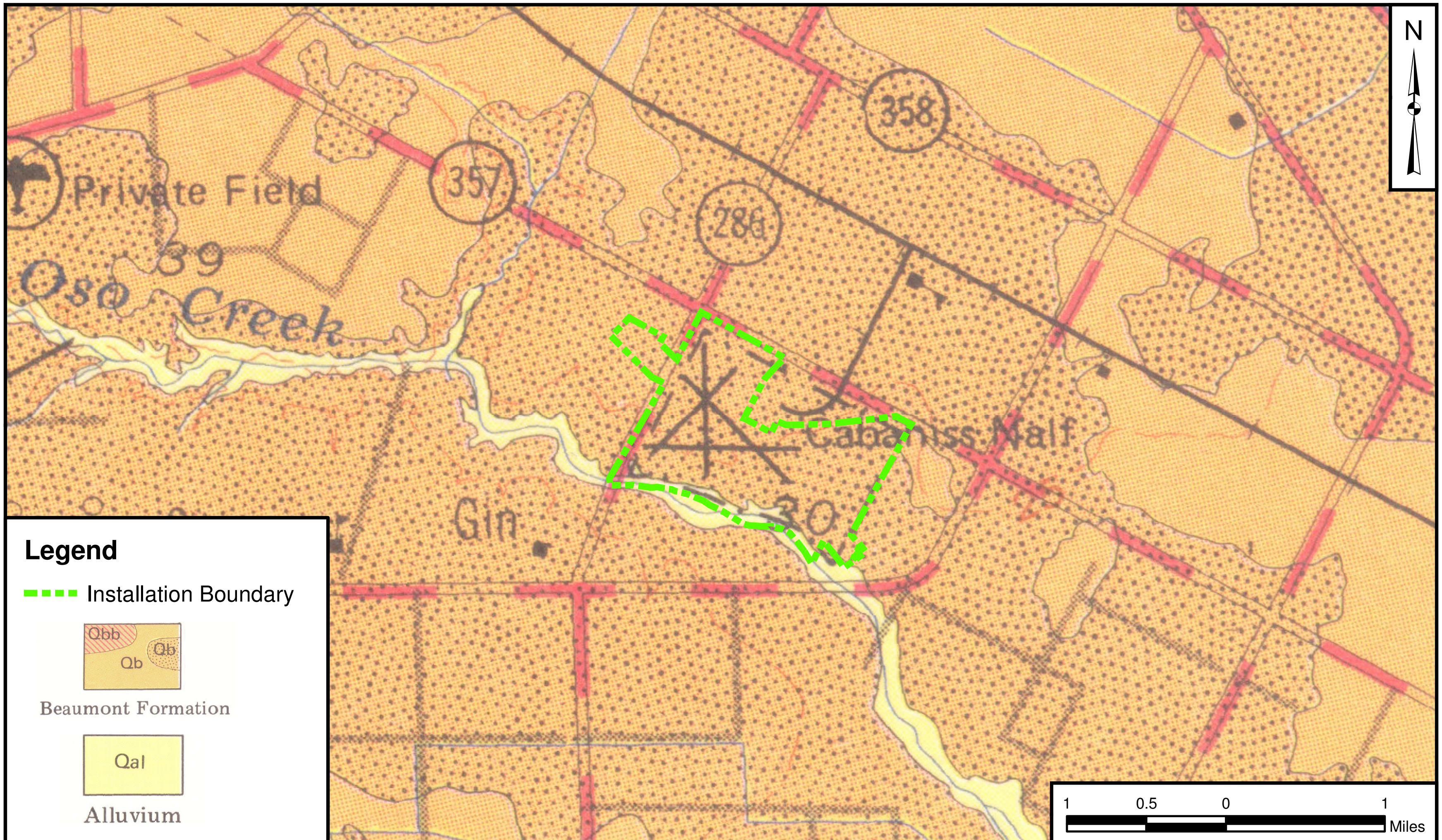
CHECKED BY FG — DATE 1/30/12			OWNER NO. 0135
REVISED BY -- — DATE ------			APPROVED BY — DATE
SCALE AS NOTED	NAVFAC		DRAWING NO. FIGURE 2-1 — REV. 0



DRAWN BY GS DATE 2/7/12		SITE MAP SKEET RANGE NALF CABANISS CORPUS CHRISTI, TEXAS	PROJECT NO. 112G01821
CHECKED BY FG DATE 2/7/12			CTO NO. 0135
REVISED BY DATE			APPROVED BY DATE
SCALE AS NOTED	NAVFAC		DRAWING NO. FIGURE 2-2 REV. 1

P:\GIS\COURPUSCHRISTI_NAS\MXD\INCINERATOR_AREA_SOILS.MXD 2/7/12 KM

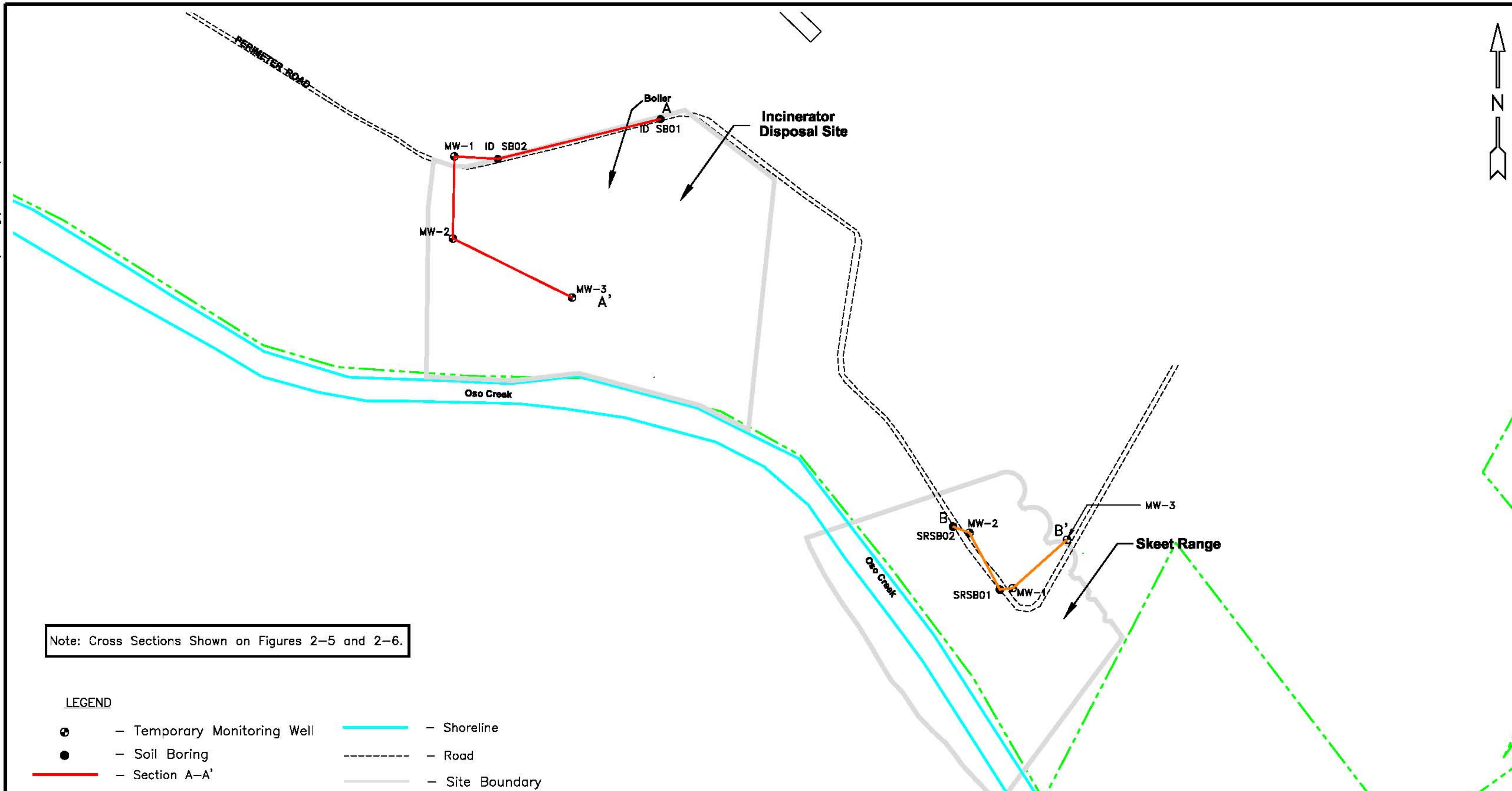


DRAWN BY	DATE
K. MOORE	11/17/11
CHECKED BY	DATE
F. GROSSKOPF	2/7/12
COST/SCHEDULE-AREA	
SCALE	
AS NOTED	

NAVFAC

GEOLOGIC MAP
NALF CABANISS
CORPUS CHRISTI, TEXAS

CONTRACT NUMBER	
CTO 0135	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO.	REV
FIGURE 2-3	0



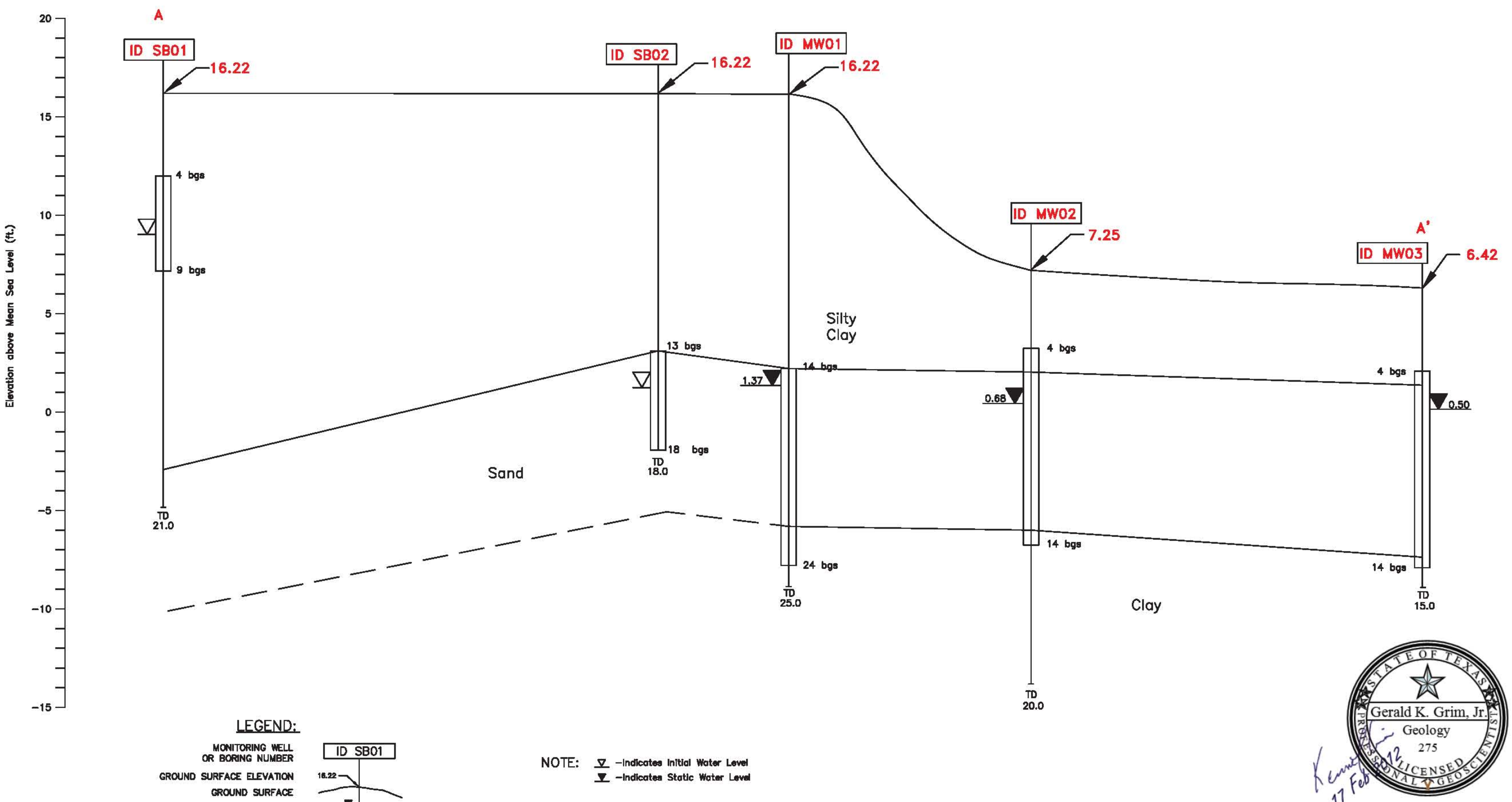
P:\Drafting\CABANISS\01821GWFIG2-4-BOUNDARY.DWG

DRAWN BY GS	DATE 2-17-12
CHECKED BY FG	DATE 2-17-12
REVISED BY	DATE
SCALE AS NOTED	

NAVFAC

TRACE OF CROSS SECTION
NALF CABANISS
CORPUS CHRISTI, TEXAS

CONTRACT NO. 112G01821	
OWNER NO. 0135	
APPROVED BY	DATE
DRAWING NO. FIGURE 2-4	REV. 0



LEGEND:

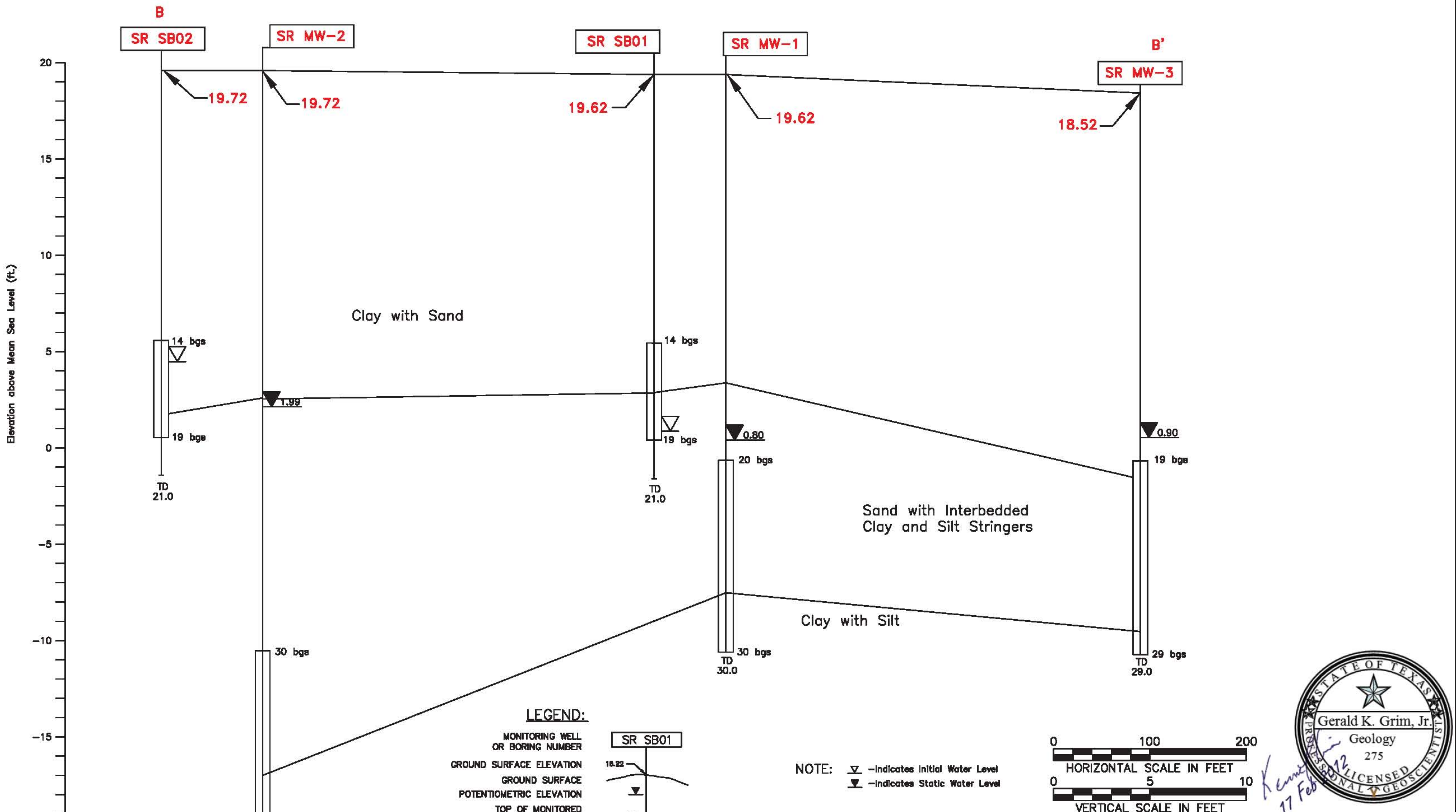
MONITORING WELL OR BORING NUMBER — ID SB01
GROUND SURFACE ELEVATION — 16.22
GROUND SURFACE
POTENTIOMETRIC ELEVATION
TOP OF MONITORED INTERVAL (FT BGS) — 13.0
BOTTOM OF MONITORED INTERVAL (FT BGS) — 23.0
TOTAL DEPTH OF WELL OR BORING (FT BGS) — TD 23.0

NOTE: ▽ –Indicates Initial Water Level
▼ –Indicates Static Water Level

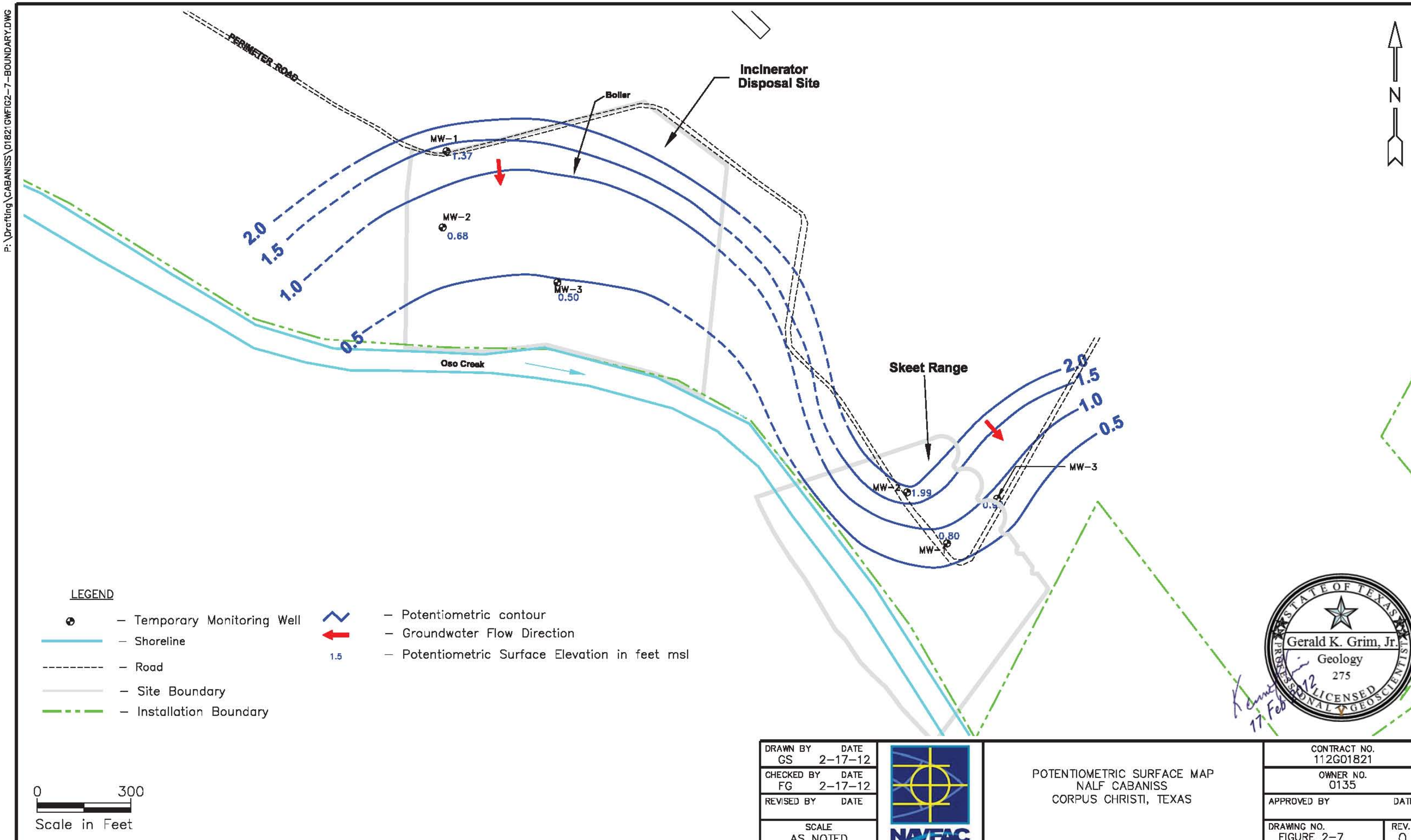
0 100 200
HORIZONTAL SCALE IN FEET

0 5 10
VERTICAL SCALE IN FEET

DRAWN BY GS DATE 1/31/12	NAVFAC	GEOLOGIC CROSS SECTION INCINERATOR DISPOSAL SITE NALF CABANISS CORPUS CHRISTI, TEXAS	PROJECT NO. 112G01821
CHECKED BY FG DATE 1/31/12			CTO NO. 0135
REVISED BY DATE			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 2-5 / REV. 0



DRAWN BY GS	DATE 1/31/12		GEOLOGIC CROSS SECTION SKEET RANGE NALF CABANISS CORPUS CHRISTI, TEXAS	PROJECT NO. 112G01821
CHECKED BY FG	DATE 1/31/12	NAVFAC		CTO NO. 0135
REVISED BY	DATE			APPROVED BY / DATE
SCALE AS NOTED				DRAWING NO. FIGURE 2-6 / REV. 0


P:\Drafting\CABANISS\01821GWFIG2-7-BOUNDARY.DWG
PERIMETER ROAD
Incinerator
Disposal Site
Boiler
MW-1
1.37
MW-2
0.68
MW-3
0.50
2.0
1.5
1.0
0.5
Oso Creek
Skeet Range
MW-2
1.99
MW-3
MW-1
0.80
N
LEGEND
– Temporary Monitoring Well
– Shoreline
– Road
– Site Boundary
– Installation Boundary
– Potentiometric contour
– Groundwater Flow Direction
1.5
– Potentiometric Surface Elevation in feet msl
0
300
Scale in Feet
STATE OF TEXAS
Gerald K. Grim, Jr.
Geology
275
PROFESSIONAL GEOSCIENTIST
LICENSED
17 Feb 12
DRAWN BY GS DATE 2-17-12
CHECKED BY FG DATE 2-17-12
REVISED BY DATE
SCALE AS NOTED
NAVFAC
POTENTIOMETRIC SURFACE MAP
NALF CABANISS
CORPUS CHRISTI, TEXAS
CONTRACT NO. 112G01821
OWNER NO. 0135
APPROVED BY DATE
DRAWING NO. FIGURE 2-7
REV. 0

3.0 REMEDIAL INVESTIGATION ACTIVITIES

The objective of the MC RI was to delineate the nature and extent of MC contaminants of concern (COCs) released as a result of DoD use of the property and to gather and compile data to support recommendations for site closure or corrective action at the Incinerator Disposal Site and former Skeet Range. The MC RI activities consisted of: drilling soil borings; installing groundwater monitor wells; collecting surface soil, subsurface soil and groundwater samples; laboratory analysis of samples; land surveying of sample locations; and reporting results. Field activities associated with the RI were performed in 2010 and 2011.

For the RI investigation sampling purpose, surface soils are defined as samples from 0 to 1 foot below ground surface (bgs) and subsurface soil samples are defined as greater than 1 foot bgs. However, for analytical data evaluation, the TRRP definitions for surface soil (0 to 15 ft. bgs) and subsurface soil (>15 ft. bgs) were used.

3.1 INVESTIGATION OBJECTIVES

3.1.1 Incinerator Disposal Site

The sampling objective of the MC RI was to gather the necessary information to determine the extent of site-specific MC present in soil and groundwater. The RI was conducted in accordance with approved Uniform Federal Policy Sampling and Analysis Plan (UFP-SAP) (Tetra Tech NUS, 2010a).

The RI for the Incinerator Disposal Site consisted of two distinctly different investigations, which were conducted in two phases. The first phase consisted of the MEC investigation which included a detector-aided surface survey for MEC, followed by a subsurface geophysics investigation, an intrusive investigation of resulting anomalies, and limited removal actions. A summary of the results of the MEC geophysical investigation is included in Section 9.0.

The second phase of the RI consisted of the MC investigation. This RI report describes the MC investigation. The results of the MEC investigation were used in conjunction with the SI results to determine RI MC sampling locations at the Incinerator Disposal Site.

3.1.2 Former Skeet Range

The sampling objective of the MC RI at the former Skeet Range was to gather the necessary information to determine the extent of site-specific MC present in soil and groundwater. The RI was conducted in accordance with approved UFP-SAP (Tetra Tech NUS, 2010b).

3.2 FIELD OPERATIONS – INCINERATOR DISPOSAL SITE

This section describes the sample locations and sample methodology during the MC RI at the Incinerator Disposal Site.

3.2.1 Multi-Increment Surface Soil Sampling Program

A multi-increment (MI) sampling approach was selected by the Project Team to determine potential MC impact to identified decision units for surface soil.

The sampling design consisted of samples within grids as shown on Figure 3-1. A total of 10 grids were sampled. The size of each grid area (decision unit) was no more than 0.5 acres. This size corresponds to the TCEQ definition of an exposure area for a commercial/industrial site. The grids also took into account the two dominant ecological habitat types at the site: woodlands and wetlands. The grids were configured to contain a majority of only one type of habitat, not both habitats, within the same grid.

The Project Team decided that MC sampling would not be conducted within the boundaries of the landfill. A geophysical survey was conducted during the MEC investigation to locate and delineate the extent of the landfill. The outline of the landfill as shown on Figure 3-1 was determined using the results of the subsurface geophysical survey, detector-aided surface sweep, and visual observations of debris on the ground surface.

UXO avoidance techniques were utilized during the MI surface soil sampling.

3.2.1.1 Multi-Increment Surface Soil Sample Locations

Figure 3-1 shows the locations of the 10 surface soil sample grids. One representative MI sample was collected from each grid. Each MI sample consisted of 30 MI subsamples. The subsamples were collected in a systematic fashion to ensure good spatial coverage across the entire sampling grid. Figure 3-1 depicts the MI subsampling locations within each grid. The actual sample locations may have varied from the proposed locations based on accessibility, physical features, or presence of MEC.

3.2.1.2 Collection of Multi-Increment Surface Soil Samples

The MI surface soil samples were collected from 0 to 0.5 feet bgs. An AMS Soil Probe was used to collect surface soil samples in areas where incremental sampling was performed. This probe consisted of a stainless steel sleeve with a hardened tip. The probe was approximately 4 feet long and came with a cross bar for advancing the probe into the soil. The diameter of the soil sample obtained from the probe was approximately 5/8 inches. The probe was decontaminated after each MI sampling decision unit was completed.

Prior to sampling, each MI grid corner was identified using previously staked and surveyed locations. Each MI subsample location within the grid was marked with a pin flag after UXO avoidance techniques were conducted at the selected location. The field crew then proceeded to each pin flag location to collect a MI subsample. To the extent practicable, foreign matter such as rocks and vegetation was excluded from the sample. The subsamples were placed in a plastic bag supplied by the analytical laboratory and marked with the sample location, depth, date, and time. The MI soil sample (consisting of the 30 subsamples) collected within each grid was field-screened using an X-Ray fluorescence (XRF) detector. A summary of the XRF field results is presented in Appendix A. The MI soil sample from each grid was submitted to the laboratory for analysis of explosives and Target Analyte List (TAL) metals.

3.2.1.3 Surface Soil Sampling Preservation Methodology

Soil sampling was performed in conjunction with the surface soil boring program, using a 5/8-inch diameter stainless steel soil probe. One soil sample was collected from each of the 30 subsample locations. The subsamples were composited into one sample for laboratory analysis. The subsamples were placed into a 2-gallon plastic bag supplied by the analytical laboratory. The sealed plastic bags were then placed in an ice chest, filled with ice and prepared for shipping. Sample collection, preservation methods, and holding times, were in accordance with United States Environmental Protection Agency (USEPA) SW-846. Table 3-1 is a soil sample analysis summary of the soil samples collected during the SI and RI.

Each member of the sampling crew donned a new pair of gloves at each sampling location. The person actually collecting the sample wore disposable nitrile gloves and changed them between each sample collected for chemical analysis.

The samples were packaged for shipment at the conclusion of each day's sample collection activities.

One 5-part replicate sample was collected for quality assurance (QA) purposes. The replicate sample locations were approximately 10 feet from the initial MI sample location in a circular pattern around the initial MI sample point. Details regarding replicate sample collection are provided in Section 3.5.2.

3.2.2 Soil Boring Program

At three locations, a drilling rig was used to advance a soil boring and install a temporary monitoring well. The soil boring/monitoring wells allowed for the collection of subsurface soil and groundwater samples to determine the vertical extent of MC contamination, and to determine if groundwater has been impacted by MC. The groundwater samples were also collected to determine the groundwater resource classification. In addition, water level measurements allowed for the construction of groundwater gradient maps.

UXO avoidance techniques were utilized during the advancement of the soil borings. UXO Technicians swept the surface of each drilling location using a Schonstedt metal locator. During drilling operations, a downhole magnetometer was inserted into the borehole every few feet to check for the presence of subsurface anomalies.

As discussed previously, the Project Team had decided that MC sampling would not be conducted within the boundaries of the landfill.

3.2.2.1 Soil Boring Locations

Figure 3-1 shows the locations of the soil boring/monitoring wells. Soil boring locations were selected based on accessibility and anticipated upgradient and downgradient groundwater flow directions. One soil boring was placed along Perimeter Road just north (upgradient) of an area where surface and subsurface MEC were found. One soil boring was placed south (downgradient) of this MEC area along the edge of the woodland/wetlands area. One soil boring was placed south (downgradient) of the area where the boiler was located at the edge of the woodland/wetland area.

3.2.2.2 Installation of Soil Borings

Three soil borings were drilled at the site. Soil borings were drilled using a Geoprobe 7720DT drilling rig with hollow stem auger (HSA) capability.

Boreholes were continuously sampled for lithologic description and chemical analysis using Geoprobe Dual Tube sampling devices. The total depths of the borings ranged between 14 feet and 24 feet bgs. Each boring was logged by an on-site geologist as it was being drilled using the Field Log of Boring form. Completed boring logs are included as Appendix A. Borehole locations were identified with an appropriately marked wooden stake (approximately 1 foot in length, with flagging tape attached) driven into the ground for surveying.

Once the total depth of the soil boring for sampling purposes had been reached, the drilling rig was converted for HSA drilling to install the monitoring well. HSA drilling was conducted using 8 5/8-inch outside diameter (OD) by 4 1/4-inch inside diameter (ID) auger flights.

Solid investigation derived waste (IDW) composed of soil cuttings generated during drilling activities was placed on plastic sheeting next to the soil boring and covered, pending analysis for subsequent disposal.

3.2.2.3 Soil Sampling and Preservation Methodology

Subsurface soil sampling was performed in conjunction with the soil boring program using a 1.375-inch diameter Dual Tube sampling system. Subsurface soil samples were collected continuously over a 5-foot interval from ground surface to the total depth of the boring. Two discrete soil samples were retained from each soil boring for laboratory analysis. The samples retained for laboratory analysis were also field-screened using an XRF. Table 3-1 summarizes the soil sample identification and subsequent laboratory analysis of the soil samples collected.

Samples collected for explosives and TAL metals analysis were placed into laboratory supplied containers. Sample containers were then promptly labeled, sealed in plastic Ziploc bags, and placed in an ice chest filled with ice pending shipment to the laboratory for analysis. The samples were packaged for shipment at the conclusion of each day's sample collection activities. Sample collection, preservation methods, holding times, and containers were all in accordance with USEPA SW-846.

3.2.3 Groundwater Program

At the three locations where soil borings were advanced, temporary monitoring wells were installed. The monitoring wells allowed for the collection of groundwater samples to determine if groundwater has been impacted by MC and to allow for the classification of the groundwater in accordance with the TRRP rule. In addition, water level measurements allowed for the construction of groundwater gradient maps.

3.2.3.1 Groundwater Sampling Locations

Figure 3-1 shows the locations of the soil boring/monitoring wells within and around the Incinerator Disposal Site. As described in sections 3.2.2.1, the monitoring wells were installed in the same locations as the soil borings.

3.2.3.2 Temporary Monitoring Well Installations

Once the total depth of the soil boring for sampling purposes had been reached, the drilling rig was converted for HSA drilling to install the monitoring well. The temporary wells consisted of new flush-threaded 2-inch ID, Schedule 40 polyvinyl chloride (PVC) riser pipe and factory slotted screen. The screen slot size was 0.01-inch and the screen length was 10 feet. The annular space surrounding each well screen was backfilled with a clean 20/40 silica sand filter pack. The sand filter pack extended from the bottom of the borehole to approximately 2 feet above the top of the screen. The annular space above the sand pack was backfilled to the ground surface with dry granular bentonite and allowed to hydrate sufficiently to prevent migration into the sand pack. Well construction diagrams are included as Appendix A.

3.2.3.3 Monitoring Well Development

The three temporary monitoring wells were developed by surging with a surge block and pumping with an electric submersible pump. During the well development process, at least three well volumes were evacuated from the monitoring wells. Water quality parameters (turbidity, specific conductance, pH, and temperature) of the formation water were recorded upon completion of development. Well development logs are included as Appendix D.

Water generated during monitoring well development was containerized and stored on-site pending analysis for subsequent disposal.

3.2.3.4 Groundwater Sampling and Preservation Methodology

Once the monitoring wells were developed, the monitoring wells were allowed to stabilize and recharge overnight prior to commencement of groundwater sampling. Following recharge, the depth to groundwater was measured relative to the top of the PVC casing at each monitoring well location. The monitoring wells were then purged with a peristaltic pump for sampling using low-flow sampling methods. During purging activities, a water quality instrument measured water quality parameters including dissolved oxygen, oxidation reduction potential, turbidity, temperature, conductivity, and pH, and the data were recorded. After three water quality readings were obtained showing stabilized (within 10 percent) water quality parameters, groundwater was sampled from the monitoring wells. Copies of groundwater sample log sheets are included as Appendix D.

The groundwater samples were collected directly from the discharge tube into laboratory-supplied containers. Groundwater sample aliquots were obtained for explosives, perchlorate, TAL metals, and TDS analysis. Sample collection, preservation methods, holding times, and containers were in accordance with USEPA SW-846. Table 3-2 is a groundwater sample analysis summary of the groundwater samples collected.

Each member of the sampling crew donned a new pair disposable nitrile gloves prior to obtaining groundwater samples. The gloves were changed between each sample location to minimize possibilities of cross-contamination. Upon filling, sample containers were appropriately labeled, sealed in plastic Ziploc bags, and placed in an ice chest filled with ice pending shipment to the laboratory for analysis. The samples were packaged for shipment at the conclusion of each day’s sampling activities.

3.2.3.5 Temporary Monitoring Well Abandonment

Following completion of groundwater sampling activities, the temporary monitoring wells were removed from the ground and the borings plugged and abandoned in accordance with Title 16 of the Texas Administrative Code (TAC), Chapter 76, Rule §76.1004. The wells were plugged by a licensed water well driller in the state of Texas. Copies of State of Texas Well Plugging Reports are included as Appendix E.

3.3 FIELD OPERATIONS – FORMER SKEET RANGE

This section describes the sample locations and sampling methodology during the former Skeet Range RI.

3.3.1 Surface Soil Sampling Program

The chosen sampling strategy employed a grid pattern to target and expand outward from those areas that were identified during the SI as being impacted with MC and to determine the extent of MC. The size of each grid area (decision unit) was no more than 0.5 acres. This size corresponds to the TCEQ definition of an exposure area for a commercial/industrial site. Because of the geometry of the site, some grids were smaller or larger in size and irregularly shaped. Figure 3-2 depicts the sampling grids. A total of 34 grids were sampled. Twenty grids (15 through 34) were sampled during the RI and fourteen grids (1 through 14) were sampled during the SI.

Prior to sampling, each sample location was located using global positioning system (GPS) coordinates. Up to five surface soil samples were collected within each grid from 0 to 1 foot bgs. These subsamples were collected in a systematic fashion to ensure good spatial coverage across the entire sampling grid. The samples were, in general, collected in an "X" pattern within each grid. The actual sample locations may have varied from the proposed locations based on accessibility and physical features. Because of access constraints caused by heavy brush and vegetation, sample locations 15b, 18b, 23e, 27a, 27c, 29b, 29c, 31a, 31d, 32a, 32b, 32d, 32e, 33a, 33b, 33c, and 33d were moved to more accessible locations. The surface soil samples were split: one portion of each sample was placed into individual laboratory supplied containers (i.e., up to five samples per grid), and a second portion of each surface soil sample was composited into one sample representing the entire grid. The composite sample was prepared by mixing a portion of each subsample in a plastic bag. Both the composite soil sample and the grab sub-samples were placed into clean, laboratory-supplied sample containers. The grab subsamples and composite surface soil sample from each grid were submitted to the fixed-base laboratory for analysis. The composite samples were analyzed for PAHs. The subsamples from each grid were placed on hold pending results of the composite sample. The composite analytical results were reviewed by the project team which then decided on which, if any, subsamples would be analyzed.

Skeet fragments were identified in the area of several of the surface soil samples collected (1a, 1b, 1c, 4b, 4c, 4d, 4e, 7b, 7c, 7d, 7e, 8a, 8b, 8c, 8e, 9a, 9c, 9e, 11a, 11b, 11c, 11e, 12a, 12d, 13b, 13c, 13d, 17b, 22a, 22b, 22c, 22d, 22e, 24a, 24b, 24c, 24e, 25d, 26d, 26e, 28c, 28d, 29a, 32a, and 33e). Figure 3-3 depicts the approximate horizontal extent of surface skeet fragments as observed by the field crews. Lead shot was not identified in any of the soil samples collected.

Boring logs were not prepared for the surface soil samples. However, the physical characteristics of the samples (e.g., color, lithology, general appearance, odor, etc.) were recorded in the field notebook or sample log sheet.

3.3.1.1 Surface Soil Sampling Preservation Methodology

Each member of the sampling crew donned a new pair of disposable nitrile gloves at each sampling location. The gloves were changed between each sample location to minimize cross contamination. Soil samples were collected using a decontaminated stainless steel trowel or disposable plastic sampler. Care was taken to not include any foreign matter (i.e., vegetation, rocks, debris) in the soil samples collected by manually removing any that was observed. Per the UFP-SAP (Tetra Tech NUS, 2010b), soil samples were to be field sieved using a No. 10 mesh (2.0-mm) sieve; however, because of clay content and/or moisture in the sample matrix, field sieving was not possible in most instances.

Samples collected for PAH analysis were placed into laboratory-supplied containers. Upon filling, sample containers were then appropriately labeled, sealed in plastic Ziploc bags, and placed in an ice chest, filled with ice and prepared for shipping. The samples were packaged for shipment at the conclusion of each day’s sampling activities. Sample collection, preservation methods, holding times, and containers were in accordance with USEPA SW-846. Table 3-3 summarizes the soil sample identification and subsequent laboratory analysis of the soil samples collected during the SI and RI.

3.3.2 Soil Boring Program

At three locations, a drilling rig was used to advance a soil boring and install a temporary monitoring well. The soil boring/monitoring wells allowed for the collection of subsurface soil and groundwater samples to determine the vertical extent of MC contamination, and to determine if groundwater has been impacted by MC. The groundwater samples were also collected to determine the groundwater resource classification. In addition, water level measurements allowed for the construction of groundwater gradient maps.

UXO avoidance techniques were utilized during the advancement of the soil borings. UXO Technicians swept the surface of each drilling location using a Schonstedt metal locator. During drilling operations, a downhole magnetometer was inserted into the borehole every few feet to check for the presence of subsurface anomalies.

3.3.2.1 Soil Boring Locations

Figure 3-2 shows the locations of the soil boring/monitoring wells. Soil boring locations were selected based on accessibility and anticipated upgradient and downgradient groundwater flow directions. The three soil borings were placed along Perimeter Road in grids that exhibited elevated concentrations of COCs as determined in the SI. One monitoring well was placed along Perimeter Road just north (upgradient) of the former firing line. The other two monitoring wells were placed in front of and parallel to the former firing line (downgradient) of the former Skeet Range.

3.3.2.2 Installation of Soil Borings

Three soil borings were drilled at the site. Soil borings were drilled using a Geoprobe 7720DT drilling rig with HSA capability.

Boreholes were sampled for lithologic description and chemical analysis using Geoprobe Dual Tube sampling devices. The total depths of the borings ranged between 29 feet and 40 feet bgs. Each boring was logged by an on-site geologist as it was being drilled using the Field Log of Boring form. Completed Boring Logs are included as Appendix A. Borehole locations were identified with an appropriately marked wooden stake (approximately 1 foot in length, with flagging tape attached) driven into the ground for surveying.

Once the total depth of the soil boring for sampling purposes had been reached, the drilling rig was converted for HSA drilling to install the monitoring well. HSA drilling was conducted using 8 5/8-inch OD by 4 1/4-inch ID auger flights.

Solid IDW composed of soil cuttings generated during drilling activities was placed on plastic sheeting next to the soil boring and covered, pending analysis for subsequent disposal.

3.3.2.3 Subsurface Soil Sampling and Preservation Methodology

Subsurface soil sampling was performed in conjunction with the soil boring program, using a 1.375-inch diameter Dual Tube sampling system. Soil samples were collected continuously over a 5-foot interval from ground surface to the total depth of the boring. Three discrete soil samples were retained from each soil boring for laboratory analysis. Table 3-3 summarizes the soil sample identification and subsequent laboratory analysis of the soil samples collected.

Samples collected for composite and sub-sample PAH analyses were placed into laboratory-supplied containers. Sample containers were then promptly labeled, sealed in plastic Ziploc bags, and placed in an ice chest filled with ice pending shipment to the laboratory for analysis. The samples were packaged for shipment at the conclusion of each day's sample collection activities. Sample collection, preservation methods, holding times, and containers were in accordance with USEPA SW-846.

3.3.3 Groundwater Program

At the three locations where soil borings were advanced, temporary monitoring wells were installed. The monitoring wells allowed for the collection of groundwater samples to determine if groundwater has been impacted by MC, and for the classification of the groundwater in accordance with the TRRP rule. In addition, water level measurements allowed for the construction of groundwater gradient maps.

3.3.3.1 Groundwater Sampling Locations

Figure 3-2 shows the locations of the soil boring/monitoring wells within and around the former Skeet Range. As described in sections 3.3.2.1, the monitoring wells were installed in the same locations as the soil borings.

3.3.3.2 Temporary Monitoring Well Installations

Once the total depth of the soil boring for sampling purposes had been reached, the drilling rig was converted for HSA drilling to install the monitoring well. The temporary wells consisted of flush-threaded 2-inch ID, Schedule 40 PVC riser pipe and factory-slotted screen. The screen slot size was 0.01-inch and the screen length was 10 feet. The annular space surrounding each well screen was backfilled with a clean 20/40 silica sand filter pack. The sand filter pack extended from the bottom of the borehole to approximately 2 feet above the top of the screen. The annular space above the sand pack was backfilled to the ground surface with dry granular bentonite and allowed to hydrate sufficiently to prevent migration into the sand pack. Well construction diagrams are included as Appendix A.

3.3.3.3 Monitoring Well Development

The three temporary monitoring wells were developed by surging with a surge block and pumping with an electric submersible pump. During the well development process, at least three well volumes were evacuated from the monitoring wells. Water quality parameters (turbidity, specific conductance, pH, and temperature) of the formation water were recorded upon completion of development. Well development logs are included as Appendix D.

Water generated during monitoring well development was containerized and stored on-site pending analysis for subsequent disposal.

3.3.3.4 Groundwater Sampling and Preservation Methodology

Once the monitoring wells were developed, the monitoring wells were allowed to stabilize and recharge overnight prior to commencement of groundwater sampling. Following recharge, the depth to groundwater was measured relative to the top of the PVC casing at each monitoring well location. Wells were then purged with a peristaltic pump for sampling using low-flow sampling methods. During purging activities, a water quality instrument measured water quality parameters including dissolved oxygen, oxidation reduction potential, turbidity, temperature, conductivity, and pH, and the data were recorded. After three water quality readings were obtained showing stabilized (within 10 percent) water quality parameters, groundwater was sampled from the monitoring wells. Copies of groundwater sample log sheets are included as Appendix D. Table 3-4 is a groundwater sample analysis summary of the groundwater samples collected.

The groundwater samples were collected directly from the discharge tube into laboratory-supplied containers. Groundwater sample aliquots were obtained for PAH and TDS analysis. Sample collection, preservation methods, holding times, and containers were in accordance with USEPA SW-846.

Each member of the sampling crew donned a new pair of disposable nitrile gloves prior to obtaining groundwater samples. The gloves were changed between each sample location to minimize possibilities of cross-contamination. Upon filling, sample containers were appropriately labeled, sealed in plastic Ziploc bags, and placed in an ice chest filled with ice pending shipment to the laboratory for analysis. The samples were packaged for shipment at the conclusion of each day's sampling activities.

3.3.3.5 Temporary Monitoring Well Abandonment

Following completion of groundwater sampling activities, the temporary monitoring wells were removed from the ground and the borings plugged and abandoned in accordance with 16 TAC §76.1004. The wells were plugged by a licensed water well driller in the state of Texas. Copies of State of Texas well Plugging Reports are included as Appendix E.

3.4 FIELD DOCUMENTATION

Field documentation and tracking of sample custody were integral portions of the overall quality assurance / quality control (QA/QC) process for the RI. The field documentation system serves as a record of activities conducted in the field during sample collection and data generation activities, and provides the means to identify, track, and monitor each sample from the time of collection through final reporting of data. Field documentation was completed in the field notebook and data sheets (e.g., boring log forms, sampling sheets, etc.) using indelible ink.

3.4.1 Field Notebooks

The sampling coordinator maintained a field notebook and field data sheets containing pertinent information regarding the samples. The field logs are intended to provide sufficient data and observations to enable the field team and other interested parties to reconstruct events that occurred during field activities. The Field Log Book will be maintained in the project files. Copies will be made available upon request.

3.4.2 Sample Identification

The sample identification scheme presented below was used to identify and label all field samples collected and all field QC blanks created during the RI activities. The sample identification procedure was used for all sample labels and chain-of-custody documents to maintain consistency in the labeling process, and to allow efficient handling of a large number of samples from different sources.

The sampling numbers were assigned as follows:

AA	AA	NN	NNNN (Soils only)	AA
Site Acronym	Matrix	Sample Location Number	Sequential depth interval from freshly exposed surface	Blank Type/ MIS Replicate

Character Type:

A = Alpha

N = Numeric

Site Name (AA):

ID = Incinerator Disposal Site

SR = Skeet Range

Matrix Code (AA):

SS = Surface Soil Sample

SB = Subsurface Soil Sample

GW = Groundwater

Location Number (NNa):

Sequential number beginning with “01” for each matrix.

Depth Interval:

This code section was used for soil samples only.

Field QA/QC samples were designated using a different coding system than the one used for regular field samples.

The QC code consisted of a three- to four-segment alpha-numeric code that identified the sample QC type, the date the sample was collected, and the number of this type of QC sample collected on that date.

AA	NNNNNN	NN
QC Type	Date	Sequence Number (per day)

Character Type:

A = Alpha
N = Numeric

QC Types:

FD = Field Duplicate
RB = Rinsate Blank
SB = Source Blank

Matrix spike and matrix spike duplicate samples were not labeled differently than the original samples. Additional sample containers were collected for analysis and noted on the chain-of-custody forms.

3.4.3 Boring Logs and Well Construction Diagrams

Boring logs were generated for the soil borings and temporary monitoring wells. Copies of the boring logs and well construction diagrams are included as Appendix A. Copies of the State of Texas Well Reports and Plugging Reports are included as Appendix E.

3.5 QUALITY ASSURANCE/QUALITY CONTROL

The objectives of the QA/QC program were to determine the quality of data (precision and bias), and to allow assessment of the quality of the data (variability).

3.5.1 Sample Management

The following record-keeping items were used to document sample collection and handling:

- Chain-of-custody records
- Sample Data Sheets
- Freight bills for samples shipped via an overnight carrier
- Analytical reports (electronic file and hard copy)

All samples collected for laboratory analysis during the course of the RI were placed into appropriate laboratory-supplied, new sample containers or plastic bags. The samples that were screened in the field were placed into either decontaminated containers (i.e., water sample aliquots designated for pH/ temperature/ turbidity/ conductivity testing) or single-use disposable containers (i.e., Ziploc bags containing soil aliquots for XRF analysis).

3.5.2 Field QA/QC Sample Description

Field quality control measures included the collection and analysis of soil and groundwater QA/QC samples. The QA/QC samples were collected during the RI sampling activities to assess the variability introduced in sampling, handling, shipping, and laboratory analysis. Field QA/QC samples included rinse (equipment) blanks, source (field) blanks, QC samples (field duplicates), matrix spike/matrix spike duplicate (MS/MSD) samples, and MI sample replicates. The types and frequency of field QA/QC samples are described in the following subsections.

3.5.2.1 Source (Field) Blanks

Source (field) blanks are samples of source water used for decontamination and cleaning. Two types of water were used for decontamination and cleaning. Potable water supplied by the city of Corpus Christi was obtained from an on-site spigot. Reagent grade water was also used. Two source (field) blanks, one for each type of water, were collected for each water type and analyzed for TAL metals and explosives at the Incinerator Disposal Site. Two source (field) blanks, one for each type of water, were collected for each water type and analyzed for PAHs at the Skeet Range.

3.5.2.2 Rinse (Equipment) Blanks

The rinse (equipment) blanks are samples prepared in the field to assess the effectiveness of decontamination procedures. The rinse blank was prepared by pouring analyte-free water supplied by the analytical laboratory through the decontaminated sampling equipment, and collecting the rinsate in appropriate clean laboratory-supplied sample containers. Rinse blanks were collected at a rate of 5 percent, being defined as one equipment blank for every 20 or less samples, per matrix.

Three rinse (equipment) blanks were collected and analyzed for TAL metals, explosives, and perchlorate at the Incinerator Disposal Site. Five rinse (equipment) blanks were collected and analyzed for PAHs at the former Skeet Range.

3.5.2.3 Field Duplicates

Field duplicates are soil and groundwater samples that are divided into two portions at the time of sampling. Field duplication provides precision information regarding homogeneity, handling, shipping, storing, preparation, and analysis. Field duplicates were collected at a frequency of one per every 10 or less samples, per matrix (solid or liquid). Two field duplicates (one soil and one groundwater) were collected and analyzed for TAL metals, explosives, and perchlorate at the Incinerator Disposal Site. Five field duplicates (four soil and one groundwater) were collected and analyzed for PAHs at the former Skeet Range.

3.5.2.4 Temperature Blanks

Temperature blanks were included in each sample cooler/container that was shipped to the laboratory. Samples were placed on ice to prevent volatilization of potential COCs from occurring while the samples are in transit. The temperature blanks are used to measure the temperature of the samples within the shipping container as they are received by the laboratory.

3.5.2.5 MI Replicates

A Replicate MI sample was collected in order to verify that an MI sample truly represented the decision unit. The collection of replicate samples allows for the calculation of a relative standard deviation (RSD) to determine the precision between the results. One replicate sample set was collected which consisted of five subsamples. The five parts of the replicate sample were collected 10 feet from the initial MI sample point in a circular pattern around the initial MI sample point.

The field replicate was used to calculate the RSD, a measure of data precision. The RSD is used as a QA measure to assess the MI sampling procedure and the mean concentration of the decision unit. The RSD is an indicator of the data distribution. It was assumed that the data have a normal distribution with a RSD of 30 percent or less. The RSD for metals is 50 percent.

Three metals (cadmium, selenium, and thallium) exceeded the RSD with values of 63.3, 55.7, and 225.4 percent, respectively. The large RSD for thallium is attributed to the fact that all but one sample was non-detect. These RSD values do not adversely impact the data.

3.5.2.7 Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicate (MS/MSD) samples were analyzed at a rate of one set per every 20 or less investigation soil and groundwater samples. For soil and groundwater samples, collection of MS/MSD samples entailed filling additional sets of sample containers for each MS/MSD set. The sample aliquots will be collected in sequence with the corresponding investigation samples. MS/MSD samples were clearly identified as such to the analytical laboratory.

3.6 FIELD MEASUREMENTS

The following subsections discuss field measurements that were performed in conjunction with the RI.

3.6.1 Incinerator Disposal Site

Field parameters measured during the course of the RI were:

- XRF analysis of soil samples.
- Water quality [pH, temperature, specific conductance, turbidity, dissolved oxygen, oxidation/reduction potential (ORP)] of water samples and during monitoring well development.

Water quality parameters were measured using a Horiba U-50.

XRF analysis was conducted using an Innov-X Alpha. XRF readings ranged from non-detect to 31 parts per million.

Instruments used to collect field data were identified with a unique identification number so that the instrument calibration and maintenance history could be traced. Each instrument was calibrated prior to its delivery to the field, daily, or as needed. A calibration check on the XRF unit was conducted approximately every 20 samples in accordance with the manufacturer's recommendations. The measurements of the XRF were subsequently adjusted for these calibration checks.

The project field notebook or the calibration log sheet was used to document the calibration of field testing equipment.

3.6.2 Former Skeet Range

Field parameters measured during the course of the RI were as follows:

- Water quality (pH, temperature, specific conductance, turbidity, dissolved oxygen, ORP) of water samples and during monitoring well development.

Water quality parameters were measured using a Horiba U-50.

Instruments used to collect field data were identified with a unique identification number so that the instrument calibration and maintenance history could be traced. Each instrument was calibrated prior to its delivery to the field, daily, or as needed.

The project field notebook or the calibration log sheet was used to document the calibration of field testing equipment.

3.7 DECONTAMINATION PROCEDURES

Proper decontamination of field equipment is an integral part of the overall QA/QC process. A decontamination pad was constructed for heavy equipment at the site. The decontamination pad was set up at a sufficient distance from the sample locations to prevent cross-contamination. The pad consisted of a high-density polyethylene membrane liner supported and secured on all sides by a 1-foot high berm constructed of landscape timbers. Wash racks were used at the decontamination pad to hold the equipment above ground to facilitate cleaning during decontamination activities. All decontamination liquids were pumped to Department of Transportation (DOT)-approved clearly identified and labeled 55-gallon drums, and stored in a secure designated area until analysis for final disposition. In addition, all containers were labeled "PENDING ANALYSIS."

3.7.1 Drilling Equipment

Heavy equipment (e.g., bits, rods, tools, etc.) was pressure washed with site-supplied potable water at the designated decontamination area prior to commencement of intrusive operations, after completion of each boring, and upon the conclusion of intrusive operations.

3.7.2 Sampling Equipment

Prior to and after the completion of all sampling events, sampling equipment was decontaminated through the following steps:

- Wash in solution of tap water and Liquinox soap or equivalent.
- Tap water rinse.
- Double rinse with deionized or distilled water.
- Air dry, if feasible.

Tap water for decontamination was obtained from a city public water supply.

3.7.3 Field Measurement Equipment

Field measurement equipment that did not directly contact environmental media was maintained in a clean manner. Field measurement equipment that directly contacted environmental media (i.e., pH and conductivity meters) was rinsed with distilled/deionized water after each usage.

3.7.4 Well Development Equipment

Well development and sampling equipment (e.g., surge block, water level indicators, etc.) were double rinsed with distilled/deionized water prior to insertion into monitoring wells.

3.8 INVESTIGATION DERIVED WASTE MANAGEMENT

The types of wastes generated as a result of the RI activities were soils, disposable sampling equipment, personal protective equipment (PPE), purge water, and decontamination liquids. The soil cuttings from the soil borings were placed on plastic sheeting next to the borehole and covered. The liquid IDW was collected and placed into 55-gallon drums. The waste containers were clearly identified and labeled “PENDING ANALYSIS.” The generated liquid IDW was temporarily stored at a location designated by NASCC personnel.

One composite soil sample was collected from the solid IDW and one composite liquid sample was collected from the drums containing liquid IDW and submitted to the laboratory for chemical analysis. The solid and liquid IDW samples were analyzed for Toxicity Characteristic Leaching Procedure (TCLP) volatile organic compounds (VOCs), TCLP semivolatile organic compounds (SVOCs), TCLP Herbicides, TCLP Pesticides, TCLP metals, and reactivity, corrosivity, and ignitability.

Analytical results for solid and liquid samples indicated that no COCs were detected at concentrations greater than residential regulatory standards. After consultation with Navy personnel, the solid IDW was spread on the ground at the drilling locations. The liquid IDW was poured onto natural ground and allowed to infiltrate into the soil.

3.9 LAND SURVEYING

Land surveying was conducted to determine the horizontal (XY) location of the surface soil sample locations. Land surveying was conducted by Tetra Tech using a Trimble GeoXH GPS. Accuracy of locations is to approximately one-half meter in the horizontal axis. The points are referenced to the Texas State Plane Coordinate System, North American Datum 1983 (NAD 83).

Monitoring well locations and vertical elevations were surveyed by Naismith Engineering, a licensed surveyor, using GPS surveying equipment. All points were referenced to the Texas State Plane Coordinate System (NAD83). Table 3-5 summarizes the coordinates of the monitoring well locations for the Incinerator Disposal Site. Table 3-6 summarize the coordinates of the surface soil sample locations and monitoring well locations for the former Skeet Range. Sample locations are shown on Figures 3-1 and 3-2, for the Incinerator Disposal Site and Skeet Range, respectively.

3.10 PHOTOGRAPHS

Photographs were taken to document RI activities. Photographic documentation is included in Appendix G.

TABLE 3-1

**SURFACE AND SUBSURFACE SOIL SAMPLE ANALYSIS SUMMARY
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 6**

Grid Number/Sample Location	Subsample Identification	Composite Sample Identification/Sample ID	Depth (feet bgs)	Analyte				
				Explosives	TAL Metals	Perchlorate	PAH(1)	FIELD XRF(2)
SI SURFACE SOILS								
	ID-SS01-1		0 - 0.5					
	ID-SS01-2		0 - 0.5					
	ID-SS01-3		0 - 0.5					
1	ID-SS01-4	ID-SS01	0 - 0.5	x	x	x		x
	ID-SS01-5		0 - 0.5					
	ID-SS01-6		0 - 0.5					
	ID-SS01-7		0 - 0.5					
	ID-SS01A-1		0 - 0.5					
	ID-SS01A-2		0 - 0.5					
	ID-SS01A-3		0 - 0.5					
1A	ID-SS01A-4	ID-SS01A	0 - 0.5	x	x			x
	ID-SS01A-5		0 - 0.5					
	ID-SS01A-6		0 - 0.5					
	ID-SS01A-7		0 - 0.5					
	ID-SS01B-1		0 - 0.5					
	ID-SS01B-2		0 - 0.5					
	ID-SS01B-3		0 - 0.5					
1B	ID-SS01B-4	ID-SS01B	0 - 0.5	x	x			x
	ID-SS01B-5		0 - 0.5					
	ID-SS01B-6		0 - 0.5					
	ID-SS01B-7		0 - 0.5					
	ID-SS01C-1		0 - 0.5					
	ID-SS01C-2		0 - 0.5					
	ID-SS01C-3		0 - 0.5					
1C	ID-SS01C-4	ID-SS01C	0 - 0.5	x	x			x
	ID-SS01C-5		0 - 0.5					
	ID-SS01C-6		0 - 0.5					
	ID-SS01C-7		0 - 0.5					
	ID-SS01D-1		0 - 0.5					
	ID-SS01D-2		0 - 0.5					
	ID-SS01D-3		0 - 0.5					
1D	ID-SS01D-4	ID-SS01D	0 - 0.5	x	x			x
	ID-SS01D-5		0 - 0.5					
	ID-SS01D-6		0 - 0.5					
	ID-SS01D-7		0 - 0.5					
	ID-SS02-1		0 - 0.5					
	ID-SS02-2		0 - 0.5					
	ID-SS02-3		0 - 0.5					
2	ID-SS02-4	ID-SS02	0 - 0.5	x	x	x		x
	ID-SS02-5		0 - 0.5					
	ID-SS02-6		0 - 0.5					
	ID-SS02-7		0 - 0.5					
	ID-SS03-1		0 - 0.5					
	ID-SS03-2		0 - 0.5					
	ID-SS03-3		0 - 0.5					
3	ID-SS03-4	ID-SS03	0 - 0.5	x	x	x		x
	ID-SS03-5		0 - 0.5					
	ID-SS03-6		0 - 0.5					
	ID-SS03-7		0 - 0.5					
	ID-SS03A-1		0 - 0.5					
	ID-SS03A-3		0 - 0.5					
	ID-SS03A-3		0 - 0.5					
3A	ID-SS03A-4	ID-SS03A	0 - 0.5	x	x			x
	ID-SS03A-5		0 - 0.5					
	ID-SS03A-6		0 - 0.5					
	ID-SS03A-7		0 - 0.5					
	ID-SS03B-1		0 - 0.5					
	ID-SS03B-3		0 - 0.5					
	ID-SS03B-3		0 - 0.5					
3B	ID-SS03B-4	ID-SS03B	0 - 0.5	x	x			x
	ID-SS03B-5		0 - 0.5					
	ID-SS03B-6		0 - 0.5					
	ID-SS03B-7		0 - 0.5					
	ID-SS03C-1		0 - 0.5					
	ID-SS03C-2		0 - 0.5					
	ID-SS03C-3		0 - 0.5					
3C	ID-SS03C-4	ID-SS03C	0 - 0.5	x	x			x
	ID-SS03C-5		0 - 0.5					
	ID-SS03C-6		0 - 0.5					
	ID-SS03C-7		0 - 0.5					

TABLE 3-1

SURFACE AND SUBSURFACE SOIL SAMPLE ANALYSIS SUMMARY
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 2 OF 6

Grid Number/Sample Location	Subsample Identification	Composite Sample Identification/Sample ID	Depth (feet bgs)	Analyte				
				Explosives	TAL Metals	Perchlorate	PAH[1]	FIELD XRF[2]
3D	ID-SS03D-1	ID-SS03D	0 - 0.5	x	x			x
	ID-SS03D-3		0 - 0.5					
	ID-SS03D-3		0 - 0.5					
	ID-SS03D-4		0 - 0.5					
	ID-SS03D-5		0 - 0.5					
	ID-SS03D-6		0 - 0.5					
	ID-SS03D-7		0 - 0.5					
4	ID-SS04-1	ID-SS04	0 - 0.5	x	x	x		x
	ID-SS04-2		0 - 0.5					
	ID-SS04-3		0 - 0.5					
	ID-SS04-4		0 - 0.5					
	ID-SS04-4		0 - 0.5					
	ID-SS04-6		0 - 0.5					
	ID-SS04-7		0 - 0.5					
4A	ID-SS04A-1	ID-SS04A	0 - 0.5	x	x			x
	ID-SS04A-2		0 - 0.5					
	ID-SS04A-3		0 - 0.5					
	ID-SS04A-4		0 - 0.5					
	ID-SS04A-4		0 - 0.5					
	ID-SS04A-6		0 - 0.5					
	ID-SS04A-7		0 - 0.5					
4B	ID-SS04B-1	ID-SS04B	0 - 0.5	x	x			x
	ID-SS04B-2		0 - 0.5					
	ID-SS04B-3		0 - 0.5					
	ID-SS04B-4		0 - 0.5					
	ID-SS04B-4		0 - 0.5					
	ID-SS04B-6		0 - 0.5					
	ID-SS04B-7		0 - 0.5					
4C	ID-SS04C-1	ID-SS04C	0 - 0.5	x	x			x
	ID-SS04C-2		0 - 0.5					
	ID-SS04C-3		0 - 0.5					
	ID-SS04C-4		0 - 0.5					
	ID-SS04C-4		0 - 0.5					
	ID-SS04C-6		0 - 0.5					
	ID-SS04C-7		0 - 0.5					
4D	ID-SS04D-1	ID-SS04D	0 - 0.5	x	x			x
	ID-SS04D-2		0 - 0.5					
	ID-SS04D-3		0 - 0.5					
	ID-SS04D-4		0 - 0.5					
	ID-SS04D-4		0 - 0.5					
	ID-SS04D-6		0 - 0.5					
	ID-SS03D-7		0 - 0.5					
5	ID-SS05-1	ID-SS05	0 - 0.5	x	x	x		x
	ID-SS05-2		0 - 0.5					
	ID-SS05-3		0 - 0.5					
	ID-SS05-4		0 - 0.5					
	ID-SS05-5		0 - 0.5					
	ID-SS05-6		0 - 0.5					
	ID-SS05-7		0 - 0.5					
5A	ID-SS05A-1	ID-SS05A	0 - 0.5	x	x			x
	ID-SS05A-2		0 - 0.5					
	ID-SS05A-3		0 - 0.5					
	ID-SS05A-4		0 - 0.5					
	ID-SS05A-5		0 - 0.5					
	ID-SS05A-6		0 - 0.5					
	ID-SS05A-7		0 - 0.5					
5B	ID-SS05B-1	ID-SS05B	0 - 0.5	x	x			x
	ID-SS05B-2		0 - 0.5					
	ID-SS05B-3		0 - 0.5					
	ID-SS05B-4		0 - 0.5					
	ID-SS05B-5		0 - 0.5					
	ID-SS05B-6		0 - 0.5					
	ID-SS05B-7		0 - 0.5					
5C	ID-SS05C-1	ID-SS05C	0 - 0.5	x	x			x
	ID-SS05C-2		0 - 0.5					
	ID-SS05C-3		0 - 0.5					
	ID-SS05C-4		0 - 0.5					
	ID-SS05C-5		0 - 0.5					
	ID-SS05C-6		0 - 0.5					
	ID-SS05C-7		0 - 0.5					

TABLE 3-1

SURFACE AND SUBSURFACE SOIL SAMPLE ANALYSIS SUMMARY
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Grid Number/Sample Location	Subsample Identification	Composite Sample Identification/Sample ID	Depth (feet bgs)	Analyte				
				Explosives	TAL Metals	Perchlorate	PAH(1)	FIELD XRF(2)
5D	ID-SS05D-1	ID-SS05D	0 - 0.5	x	x			x
	ID-SS05D-2		0 - 0.5					
	ID-SS05D-3		0 - 0.5					
	ID-SS05D-4		0 - 0.5					
	ID-SS05D-5		0 - 0.5					
	ID-SS05D-6		0 - 0.5					
	ID-SS05D-7		0 - 0.5					
6	ID-SS06-1	ID-SS06	0 - 0.5	x	x	x		x
	ID-SS06-2		0 - 0.5					
	ID-SS06-3		0 - 0.5					
	ID-SS06-4		0 - 0.5					
	ID-SS06-5		0 - 0.5					
	ID-SS06-6		0 - 0.5					
	ID-SS06-7		0 - 0.5					
6A	ID-SS06A-1	ID-SS06A	0 - 0.5	x	x			x
	ID-SS06A-2		0 - 0.5					
	ID-SS06A-3		0 - 0.5					
	ID-SS06A-4		0 - 0.5					
	ID-SS06A-5		0 - 0.5					
	ID-SS06A-6		0 - 0.5					
	ID-SS06A-7		0 - 0.5					
6B	ID-SS06B-1	ID-SS06B	0 - 0.5	x	x			x
	ID-SS06B-2		0 - 0.5					
	ID-SS06B-3		0 - 0.5					
	ID-SS06B-4		0 - 0.5					
	ID-SS06B-5		0 - 0.5					
	ID-SS06B-6		0 - 0.5					
	ID-SS06B-7		0 - 0.5					
6C	ID-SS06C-1	ID-SS06C	0 - 0.5	x	x			x
	ID-SS06C-2		0 - 0.5					
	ID-SS06C-3		0 - 0.5					
	ID-SS06C-4		0 - 0.5					
	ID-SS06C-5		0 - 0.5					
	ID-SS06C-6		0 - 0.5					
	ID-SS06C-7		0 - 0.5					
6D	ID-SS06D-1	ID-SS06D	0 - 0.5	x	x			x
	ID-SS06D-2		0 - 0.5					
	ID-SS06D-3		0 - 0.5					
	ID-SS06D-4		0 - 0.5					
	ID-SS06D-5		0 - 0.5					
	ID-SS06D-6		0 - 0.5					
	ID-SS03D-7		0 - 0.5					
7	ID-SS07-1	ID-SS07	0 - 0.5	x	x	x	x	x
	ID-SS07-2		0 - 0.5					
	ID-SS07-3		0 - 0.5					
	ID-SS07-4		0 - 0.5					
	ID-SS07-5		0 - 0.5					
	ID-SS07-6		0 - 0.5					
	ID-SS07-7		0 - 0.5					
7A	ID-SS07A-1	ID-SS07A	0 - 0.5	x	x		x	x
	ID-SS07A-2		0 - 0.5					
	ID-SS07A-3		0 - 0.5					
	ID-SS07A-4		0 - 0.5					
	ID-SS07A-5		0 - 0.5					
	ID-SS07A-6		0 - 0.5					
	ID-SS07A-7		0 - 0.5					
7B	ID-SS07B-1	ID-SS07B	0 - 0.5	x	x		x	x
	ID-SS07B-2		0 - 0.5					
	ID-SS07B-3		0 - 0.5					
	ID-SS07B-4		0 - 0.5					
	ID-SS07B-5		0 - 0.5					
	ID-SS07B-6		0 - 0.5					
	ID-SS07B-7		0 - 0.5					
7C	ID-SS07C-1	ID-SS07C	0 - 0.5	x	x		x	x
	ID-SS07C-2		0 - 0.5					
	ID-SS07C-3		0 - 0.5					
	ID-SS07C-4		0 - 0.5					
	ID-SS07C-5		0 - 0.5					
	ID-SS07C-6		0 - 0.5					
	ID-SS07C-7		0 - 0.5					

TABLE 3-1

SURFACE AND SUBSURFACE SOIL SAMPLE ANALYSIS SUMMARY
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Grid Number/Sample Location	Subsample Identification	Composite Sample Identification/Sample ID	Depth (feet bgs)	Analyte				
				Explosives	TAL Metals	Perchlorate	PAH(1)	FIELD XRF(2)
7D	ID-SS07D-1	ID-SS07D	0 - 0.5	x	x		x	x
	ID-SS07D-2		0 - 0.5					
	ID-SS07D-3		0 - 0.5					
	ID-SS07D-4		0 - 0.5					
	ID-SS07D-5		0 - 0.5					
	ID-SS07D-6		0 - 0.5					
	ID-SS03D-7		0 - 0.5					
8	ID-SS08-1	ID-SS08	0 - 0.5	x	x	x		x
	ID-SS08-2		0 - 0.5					
	ID-SS08-3		0 - 0.5					
	ID-SS08-4		0 - 0.5					
	ID-SS08-5		0 - 0.5					
	ID-SS08-6		0 - 0.5					
	ID-SS08-7		0 - 0.5					
9	ID-SS09-1	ID-SS09	0 - 0.5	x	x	x	x	x
	ID-SS09-2		0 - 0.5					
	ID-SS09-3		0 - 0.5					
	ID-SS09-4		0 - 0.5					
	ID-SS09-5		0 - 0.5					
	ID-SS09-6		0 - 0.5					
	ID-SS09-7		0 - 0.5					
10	ID-SS10-1	ID-SS10	0 - 0.5	x	x	x	x	x
	ID-SS10-2		0 - 0.5					
	ID-SS10-3		0 - 0.5					
	ID-SS10-4		0 - 0.5					
	ID-SS10-5		0 - 0.5					
	ID-SS10-6		0 - 0.5					
	ID-SS10-7		0 - 0.5					
11	ID-SS11-1	ID-SS11	0 - 0.5	x	x	x		x
	ID-SS11-2		0 - 0.5					
	ID-SS11-3		0 - 0.5					
	ID-SS11-4		0 - 0.5					
	ID-SS11-5		0 - 0.5					
	ID-SS11-6		0 - 0.5					
	ID-SS11-7		0 - 0.5					
12	ID-SS12-1	ID-SS12	0 - 0.5	x	x	x		x
	ID-SS12-2		0 - 0.5					
	ID-SS12-3		0 - 0.5					
	ID-SS12-4		0 - 0.5					
	ID-SS12-5		0 - 0.5					
	ID-SS12-6		0 - 0.5					
	ID-SS12-7		0 - 0.5					
13	ID-SS13-1	ID-SS13	0 - 0.5	x	x	x		x
	ID-SS13-2		0 - 0.5					
	ID-SS13-3		0 - 0.5					
	ID-SS13-4		0 - 0.5					
	ID-SS13-5		0 - 0.5					
	ID-SS13-6		0 - 0.5					
	ID-SS13-7		0 - 0.5					
BG-ID-1	BG-ID-SS01-1	BG-ID-SS01	0 - 0.5	x	x	x	x	x
	BG-ID-SS01-2		0 - 0.5					
	BG-ID-SS01-3		0 - 0.5					
	BG-ID-SS01-4		0 - 0.5					
	BG-ID-SS01-5		0 - 0.5					
	BG-ID-SS01-6		0 - 0.5					
	BG-ID-SS01-7		0 - 0.5					
BG-ID-2	BG-ID-SS02-1	BG-ID-SS02	0 - 0.5	x	x	x	x	x
	BG-ID-SS02-2		0 - 0.5					
	BG-ID-SS02-3		0 - 0.5					
	BG-ID-SS02-4		0 - 0.5					
	BG-ID-SS02-5		0 - 0.5					
	BG-ID-SS02-6		0 - 0.5					
	BG-ID-SS02-7		0 - 0.5					
BG-ID-3	BG-ID-SS03-1	BG-ID-SS03	0 - 0.5	x	x	x	x	x
	BG-ID-SS03-2		0 - 0.5					
	BG-ID-SS03-3		0 - 0.5					
	BG-ID-SS03-4		0 - 0.5					
	BG-ID-SS03-5		0 - 0.5					
	BG-ID-SS03-6		0 - 0.5					
	BG-ID-SS03-7		0 - 0.5					

TABLE 3-1

**SURFACE AND SUBSURFACE SOIL SAMPLE ANALYSIS SUMMARY
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 5 OF 6**

Grid Number/Sample Location	Subsample Identification	Composite Sample Identification/Sample ID	Depth (feet bgs)	Analyte				
				Explosives	TAL Metals	Perchlorate	PAH(1)	FIELD XRF(2)
BG-ID-4	BG-ID-SS04-1	BG-ID-SS04	0 - 0.5	x	x	x	x	x
	BG-ID-SS04-2		0 - 0.5					
	BG-ID-SS04-3		0 - 0.5					
	BG-ID-SS04-4		0 - 0.5					
	BG-ID-SS04-5		0 - 0.5					
	BG-ID-SS04-6		0 - 0.5					
	BG-ID-SS04-7		0 - 0.5					
BG-ID-5	BG-ID-SS05-1	BG-ID-SS05	0 - 0.5	x	x	x	x	x
	BG-ID-SS05-2		0 - 0.5					
	BG-ID-SS05-3		0 - 0.5					
	BG-ID-SS05-4		0 - 0.5					
	BG-ID-SS05-5		0 - 0.5					
	BG-ID-SS05-6		0 - 0.5					
	BG-ID-SS05-7		0 - 0.5					
BG-ID-6	BG-ID-SS06-1	BG-ID-SS06	0 - 0.5	x	x	x	x	x
	BG-ID-SS06-2		0 - 0.5					
	BG-ID-SS06-3		0 - 0.5					
	BG-ID-SS06-4		0 - 0.5					
	BG-ID-SS06-5		0 - 0.5					
	BG-ID-SS06-6		0 - 0.5					
	BG-ID-SS06-7		0 - 0.5					
BG-ID-7	BG-ID-SS07-1	BG-ID-SS07	0 - 0.5	x	x	x	x	x
	BG-ID-SS07-2		0 - 0.5					
	BG-ID-SS07-3		0 - 0.5					
	BG-ID-SS07-4		0 - 0.5					
	BG-ID-SS07-5		0 - 0.5					
	BG-ID-SS07-6		0 - 0.5					
	BG-ID-SS07-7		0 - 0.5					
BG-ID-8	BG-ID-SS08-1	BG-ID-SS08	0 - 0.5	x	x	x	x	x
	BG-ID-SS08-2		0 - 0.5					
	BG-ID-SS08-3		0 - 0.5					
	BG-ID-SS08-4		0 - 0.5					
	BG-ID-SS08-5		0 - 0.5					
	BG-ID-SS08-6		0 - 0.5					
	BG-ID-SS08-7		0 - 0.5					
BG-ID-9	BG-ID-SS09-1	BG-ID-SS09	0 - 0.5	x	x	x	x	x
	BG-ID-SS09-2		0 - 0.5					
	BG-ID-SS09-3		0 - 0.5					
	BG-ID-SS09-4		0 - 0.5					
	BG-ID-SS09-5		0 - 0.5					
	BG-ID-SS09-6		0 - 0.5					
	BG-ID-SS09-7		0 - 0.5					
BG-ID-10	BG-ID-SS10-1	BG-ID-SS10	0 - 0.5	x	x	x	x	x
	BG-ID-SS10-2		0 - 0.5					
	BG-ID-SS10-3		0 - 0.5					
	BG-ID-SS10-4		0 - 0.5					
	BG-ID-SS10-5		0 - 0.5					
	BG-ID-SS10-6		0 - 0.5					
	BG-ID-SS10-7		0 - 0.5					

TABLE 3-1

SURFACE AND SUBSURFACE SOIL SAMPLE ANALYSIS SUMMARY
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Grid Number/Sample Location	Subsample Identification	Composite Sample Identification/Sample ID	Depth (feet bgs)	Analyte				
				Explosives	TAL Metals	Perchlorate	PAH(1)	FIELD XRF(2)
RI SURFACE SOILS								
IDSS 001	NA	IDSS 0010001	0.0-0.5	x	x			x
IDSS 002	NA	IDSS 0020001	0.0-0.5	x	x			x
IDSS 003	NA	IDSS 0030001	0.0-0.5	x	x			x
IDSS 004	NA	IDSS 0040001	0.0-0.5	x	x			x
IDSS 005	NA	IDSS 0050001	0.0-0.5	x	x			x
IDSS 005a	NA	IDSS 005a0001	0.0-0.5	x	x			x
IDSS 005b	NA	IDSS 005b0001	0.0-0.5	x	x			x
IDSS 005c	NA	IDSS 005c0001	0.0-0.5	x	x			x
IDSS 005d	NA	IDSS 005d0001	0.0-0.5	x	x			x
IDSS 005e	NA	IDSS 005e0001	0.0-0.5	x	x			x
IDSS 006	NA	IDSS 0060001	0.0-0.5	x	x			x
IDSS 007	NA	IDSS 0070001	0.0-0.5	x	x			x
IDSS 008	NA	IDSS 0080001	0.0-0.5	x	x			x
IDSS 009	NA	IDSS 0090001	0.0-0.5	x	x			x
IDSS 010	NA	IDSS 0100001	0.0-0.5	x	x			x
RI SUBSURFACE SOILS								
IDSS 003	IDSB 001	IDSB 0010507	5.0-7.0	x	x			x
IDSS 003	IDSB 001	IDSB 0011214	12.0-14.0	x	x			x
IDSB 006	IDSB 002	IDSB 0020507	5.0-7.0	x	x			x
IDSB 006	IDSB 002	IDSB 0020810	8.0-10.0	x	x			x
NA	IDSB 003	IDSB 0030203	2.0-3.0	x	x			x
NA	IDSB 003	IDSB 0030508	5.0-8.0	x	x			x

Notes:
1. PAH - Polyaromatic Hydrocarbons
2. X-ray fluorescence field screening

TABLE 3-2

GROUNDWATER SAMPLE ANALYSIS SUMMARY
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1

Sample Location	Sample ID	Metals	Explosives	Perchlorate	TDS
		TAL Metals SW-846 Methods 6010B, 7471A	SW-846 Method 8330B Modified	SW-846 Method 6850 Modified	Standard Method (SM) 2540C
IDGW001	IDGW 001MW	x	x	x	x
IDGW002	IDGW 002MW	x	x	x	x
IDGW003	IDGW 003MW	x	x	x	x

Notes:
ID=Incinerator Disposal Site
GW=Groundwater
MW=Monitoring Well

TABLE 3-3

SURFACE AND SUBSURFACE SOIL SAMPLE ANALYSIS SUMMARY
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 4

Grid Number	Subsample Identification	Sample Identification	Depth (feet bgs)	Metals (1)	PAHs	XRF (2)
SI SURFACE SOILS						
1	SR-SS01a	SR-SS01	0 - 0.5	x	x	x
1	SR-SS01b		0 - 0.5			x
1	SR-SS01c		0 - 0.5			x
2	SR-SS02a	SR-SS02	0 - 0.5	x	x	x
2	SR-SS02b		0 - 0.5			x
2	SR-SS02c		0 - 0.5			x
2	SR-SS02d		0 - 0.5			x
2	SR-SS02e		0 - 0.5			x
3	SR-SS03a	SR-SS03	0 - 0.5	x	x	x
3	SR-SS03b		0 - 0.5			x
3	SR-SS03c		0 - 0.5			x
3	SR-SS03d		0 - 0.5			x
3	SR-SS03e		0 - 0.5			x
4	SR-SS04a	SR-SS04	0 - 0.5	x	x	x
4	SR-SS04b		0 - 0.5			x
4	SR-SS04c		0 - 0.5			x
4	SR-SS04d		0 - 0.5			x
4	SR-SS04e		0 - 0.5			x
5	SR-SS05a	SR-SS05	0 - 0.5	x	x	x
5	SR-SS05b		0 - 0.5			x
5	SR-SS05c		0 - 0.5			x
6	SR-SS06a	SR-SS06	0 - 0.5	x	x	x
6	SR-SS06b		0 - 0.5			x
6	SR-SS06c		0 - 0.5			x
7	SR-SS07a	SR-SS07	0 - 0.5	x	x	x
7	SR-SS07b		0 - 0.5			x
7	SR-SS07c		0 - 0.5			x
7	SR-SS07d		0 - 0.5			x
7	SR-SS07e		0 - 0.5			x
8	SR-SS08a	SR-SS08	0 - 0.5	x	x	x
8	SR-SS08b		0 - 0.5			x
8	SR-SS08c		0 - 0.5			x
8	SR-SS08d		0 - 0.5			x
8	SR-SS08e		0 - 0.5			x
9	SR-SS09a	SR-SS09	0 - 0.5	x	x	x
9	SR-SS09b		0 - 0.5			x
9	SR-SS09c		0 - 0.5			x
9	SR-SS09d		0 - 0.5			x
9	SR-SS09e		0 - 0.5			x
10	SR-SS10a	SR-SS10	0 - 0.5	x	x	x
10	SR-SS10b		0 - 0.5			x
10	SR-SS10c		0 - 0.5			x
10	SR-SS10d		0 - 0.5			x
10	SR-SS10e		0 - 0.5			x
11	SR-SS11a	SR-SS11	0 - 0.5	x	x	x
11	SR-SS11b		0 - 0.5			x
11	SR-SS11c		0 - 0.5			x
11	SR-SS11d		0 - 0.5			x
11	SR-SS11e		0 - 0.5			x

TABLE 3-3

SURFACE AND SUBSURFACE SOIL SAMPLE ANALYSIS SUMMARY
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 2 OF 4

Grid Number	Subsample Identification	Sample Identification	Depth (feet bgs)	Metals (1)	PAHs	XRF (2)
12	SR-SS12a	SR-SS12	0 - 0.5	x	x	x
12	SR-SS12b		0 - 0.5			x
12	SR-SS12c		0 - 0.5			x
12	SR-SS12d		0 - 0.5			x
12	SR-SS12e		0 - 0.5			x
13	SR-SS12a	SR-SS13	0 - 0.5	x	x	x
13	SR-SS13b		0 - 0.5			x
13	SR-SS13c		0 - 0.5			x
13	SR-SS13d		0 - 0.5			x
13	SR-SS13e		0 - 0.5			x
14	SR-SS14a	SR-SS14	0 - 0.5	x	x	x
8	SR-SS17	SR-SS17	0 - 0.5	(3)		x
RI SURFACE SOILS						
15	SR-SS015a0001	SR-SS0150001	0 - 1.0		x	
	SR-SS015b0001		0 - 1.0			
	SR-SS015c0001		0 - 1.0			
	SR-SS015d0001		0 - 1.0			
	SR-SS015e0001		0 - 1.0			
16	SR-SS016a0001	SR-SS0160001	0 - 1.0		x	
	SR-SS016b0001		0 - 1.0			
	SR-SS016c0001		0 - 1.0			
17	SR-SS017a0001	SR-SS0170001	0 - 1.0		x	
	SR-SS017b0001		0 - 1.0			
18	SR-SS018a0001	SR-SS0180001	0 - 1.0		x	
	SR-SS018b0001		0 - 1.0			
	SR-SS018c0001		0 - 1.0			
	SR-SS018d0001		0 - 1.0			
	SR-SS018e0001		0 - 1.0			
19	SR-SS019a0001	SR-SS0190001	0 - 1.0		x	
	SR-SS019b0001		0 - 1.0			
	SR-SS019c0001		0 - 1.0			
	SR-SS019d0001		0 - 1.0			
	SR-SS019e0001		0 - 1.0			
20	SR-SS020a0001	SR-SS0200001	0 - 1.0		x	
	SR-SS020b0001		0 - 1.0			
	SR-SS020c0001		0 - 1.0			
	SR-SS020d0001		0 - 1.0			
	SR-SS020e0001		0 - 1.0			
21	SR-SS021a0001	SR-SS0210001	0 - 1.0		x	
	SR-SS021b0001		0 - 1.0			
	SR-SS021c0001		0 - 1.0			
22	SR-SS022a0001	SR-SS0220001	0 - 1.0		x	
	SR-SS022b0001		0 - 1.0			
	SR-SS022c0001		0 - 1.0			
	SR-SS022d0001		0 - 1.0			
	SR-SS022e0001		0 - 1.0			
23	SR-SS023a0001	SR-SS0230001	0 - 1.0		x	
	SR-SS023b0001		0 - 1.0			
	SR-SS023c0001		0 - 1.0			
	SR-SS023d0001		0 - 1.0			
	SR-SS023e0001		0 - 1.0			

TABLE 3-3

SURFACE AND SUBSURFACE SOIL SAMPLE ANALYSIS SUMMARY
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 3 OF 4

Grid Number	Subsample Identification	Sample Identification	Depth (feet bgs)	Metals [1]	PAHs	XRF [2]
24	SR-SS024a0001	SR-SS0240001	0 - 1.0		x	
	SR-SS024b0001		0 - 1.0			
	SR-SS024c0001		0 - 1.0			
	SR-SS024d0001		0 - 1.0			
	SR-SS024e0001		0 - 1.0			
25	SR-SS025a0001	SR-SS0250001	0 - 1.0		x	
	SR-SS025b0001		0 - 1.0			
	SR-SS025c0001		0 - 1.0			
	SR-SS025d0001		0 - 1.0			
	SR-SS025e0001		0 - 1.0			
26	SR-SS026a0001	SR-SS0260001	0 - 1.0		x	
	SR-SS026b0001		0 - 1.0			
	SR-SS026c0001		0 - 1.0			
	SR-SS026d0001		0 - 1.0			
	SR-SS026e0001		0 - 1.0			
27	SR-SS027a0001	SR-SS0270001	0 - 1.0		x	
	SR-SS027b0001		0 - 1.0			
	SR-SS027c0001		0 - 1.0			
	SR-SS027d0001		0 - 1.0			
	SR-SS027e0001		0 - 1.0			
28	SR-SS028a0001	SR-SS0280001	0 - 1.0		x	
	SR-SS028b0001		0 - 1.0			
	SR-SS028c0001		0 - 1.0			
	SR-SS028d0001		0 - 1.0			
	SR-SS028e0001		0 - 1.0			
29	SR-SS029a0001	SR-SS0290001	0 - 1.0		x	
	SR-SS029b0001		0 - 1.0			
	SR-SS029c0001		0 - 1.0			
	SR-SS029d0001		0 - 1.0			
	SR-SS029e0001		0 - 1.0			
30	SR-SS030a0001	SR-SS0300001	0 - 1.0		x	
	SR-SS030b0001		0 - 1.0			
	SR-SS030c0001		0 - 1.0			
	SR-SS030d0001		0 - 1.0			
	SR-SS030e0001		0 - 1.0			
31	SR-SS031a0001	SR-SS0310001	0 - 1.0		x	
	SR-SS031b0001		0 - 1.0			
	SR-SS031c0001		0 - 1.0			
	SR-SS031d0001		0 - 1.0			
	SR-SS031e0001		0 - 1.0			
32	SR-SS032a0001	SR-SS0320001	0 - 1.0		x	
	SR-SS032b0001		0 - 1.0			
	SR-SS032c0001		0 - 1.0			
	SR-SS032d0001		0 - 1.0			
	SR-SS032e0001		0 - 1.0			
33	SR-SS033a0001	SR-SS0330001	0 - 1.0		x	
	SR-SS033b0001		0 - 1.0			
	SR-SS033c0001		0 - 1.0			
	SR-SS033d0001		0 - 1.0			
	SR-SS033e0001		0 - 1.0			

TABLE 3-3

SURFACE AND SUBSURFACE SOIL SAMPLE ANALYSIS SUMMARY
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 4 OF 4

Grid Number	Subsample Identification	Sample Identification	Depth (feet bgs)	Metals (1)	PAHs	XRF (2)
34	SR-SS034a0001	SR-SS0340001	0 - 1.0		x	
	SR-SS034b0001		0 - 1.0			
	SR-SS034c0001		0 - 1.0			
	SR-SS034d0001		0 - 1.0			
	SR-SS034e0001		0 - 1.0			
RI SUBSURFACE SOILS						
3	SR-SB001-0203	SR-SB001	2.0 - 3.0		X	
3	SR-SB001-0507	SR-SB001	5.0 - 7.0		X	
3	SR-SB001-1012	SR-SB001	10.0 - 12.0		X	
8	SR-SB002-0203	SR-SB002	2.0 - 3.0		X	
8	SR-SB002-0507	SR-SB002	5.0 - 7.0		X	
8	SR-SB002-1012	SR-SB002	10.0 - 12.0		X	
5	SR-SB003-0102	SR-SB003	1.0 - 2.0		X	
5	SR-SB003-0507	SR-SB003	5.0 - 7.0		X	
5	SR-SB003-1012	SR-SB003	10.0 - 12.0		X	

Notes:
PAHs - Polyaromatic Hydrocarbons
1. Antimony, arsenic, copper, lead, zinc.
2. X-ray fluorescence field screening.

TABLE 3-4

GROUNDWATER SAMPLE ANALYSIS SUMMARY
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1

Grid Number	Sample Identification	Depth (feet bgs)	PAHs	TDS
			SW-846 8270C	Standard Method (SM) 2540C
8	SR MW01	NA	X	X
3	SR MW02	NA	X	X
5	SR MW03	NA	X	X

Notes:
SR = Skeet Range
PAHs = Polycyclic aromatic hydrocarbons
MW = Monitoring Well Sample
NA = Not Applicable

TABLE 3-5

**SAMPLE LOCATION COORDINATES
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1**

Location	Area	Northing (feet)	Easting (feet)
IC MW 1	MI GRID 3	17143091.29	1328766.25
IC MW 2	MI GRID 6	17142848.50	1328761.44
IC MW 3	NEAR MI GRID 8	17142673.73	1329114.05

Note:
Coordinates are Texas State Plane South Zone (NAD83)

TABLE 3-6

SAMPLE LOCATION COORDINATES
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 3

Location	Area	Northing (feet)	Easting (feet)
SR-SS01A	Grid1	17142061.070	1330258.123
SR-SS01B	Grid1	17142072.645	1330336.988
SR-SS01C	Grid1	17142089.706	1330419.691
SR-SS02A	Grid 2	17141990.387	1330025.714
SR-SS02B	Grid 2	17142009.600	1330147.880
SR-SS02C	Grid 2	17141965.466	1330088.061
SR-SS02D	Grid 2	17141928.580	1330025.590
SR-SS02E	Grid 2	17141908.515	1330146.148
SR-SS03A	Grid 3	17142009.011	1330207.108
SR-SS03B	Grid 3	17142006.835	1330293.533
SR-SS03C	Grid 3	17141965.010	1330248.904
SR-SS03D	Grid 3	17141922.120	1330207.197
SR-SS03E	Grid 3	17141921.018	1330291.672
SR-SS04A	Grid 4	17142008.119	1330359.218
SR-SS04B	Grid 4	17142008.826	1330442.706
SR-SS04C	Grid 4	17141966.291	1330400.025
SR-SS04D	Grid 4	17141924.458	1330354.425
SR-SS04E	Grid 4	17141924.100	1330440.835
SR-SS05A	Grid 5	17142041.110	1330519.770
SR-SS05B	Grid 5	17141922.823	1330504.600
SR-SS05C	Grid 5	17141913.308	1330582.997
SR-SS06A	Grid 6	17141866.463	1330074.660
SR-SS06B	Grid 6	17141858.013	1330150.135
SR-SS06C	Grid 6	17141765.302	1330149.950
SR-SS07A	Grid 7	17141857.402	1330206.774
SR-SS07B	Grid 7	17141861.406	1330293.148
SR-SS07C	Grid 7	17141816.339	1330252.106
SR-SS07D	Grid 7	17141771.598	1330206.530
SR-SS07E	Grid 7	17141771.240	1330292.941
SR-SS08A	Grid 8	17141858.666	1330355.954
SR-SS08B	Grid 8	17141859.404	1330443.002
SR-SS08C	Grid 8	17141814.673	1330398.721
SR-SS08D	Grid 8	17141774.000	1330361.202
SR-SS08E	Grid 8	17141771.777	1330442.127
SR-SS09A	Grid 9	17141859.250	1330510.640
SR-SS09B	Grid 9	17141857.151	1330520.399
SR-SS09C	Grid 9	17141816.106	1330567.640
SR-SS09D	Grid 9	17141773.083	1330510.400
SR-SS09E	Grid 9	17141772.204	1330621.087
SR-SS10A	Grid 10	17141706.880	1330206.108
SR-SS10B	Grid 10	17141707.612	1330292.509
SR-SS10C	Grid 10	17141665.151	1330258.565
SR-SS10D	Grid 10	17141622.823	1330238.195
SR-SS10E	Grid 10	17141558.258	1330300.894
SR-SS11A	Grid 11	17141711.424	1330356.231
SR-SS11B	Grid 11	17141708.868	1330440.718
SR-SS11C	Grid 11	17141669.258	1330399.954
SR-SS11D	Grid 11	17141625.637	1330357.929
SR-SS11E	Grid 11	17141623.090	1330443.387
SR-SS12A	Grid 12	17141707.594	1330504.806
SR-SS12B	Grid 12	17141706.143	1330590.903
SR-SS12C	Grid 12	17141668.642	1330541.706
SR-SS12D	Grid 12	17141600.440	1330516.395
SR-SS12E	Grid 12	17141531.928	1330497.234
SR-SS13A	Grid 13	17141558.763	1330360.437
SR-SS13C	Grid 13	17141558.752	1330444.903

TABLE 3-6

SAMPLE LOCATION COORDINATES
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 2 OF 3

Location	Area	Northing (feet)	Easting (feet)
SR-SS13D	Grid 13	17141514.759	1330401.910
SR-SS13E	Grid 13	17141474.033	1330358.243
SR-SS13A	Grid 13	17141473.667	1330443.683
SR-SS14	Grid 14	17141400.715	1330415.498
SR-SS17	Grid 8 MEC	17141892.000	1330285.000
SR-SS015A	Grid 15	17142132.380	1330060.991
SR-SS015B	Grid 15	17142136.05	1330150.118
SR-SS015C	Grid 15	17142092.968	1330093.339
SR-SS015D	Grid 15	17142050.883	1330051.916
SR-SS015E	Grid 15	17142047.415	1330134.388
SR-SS016A	Grid 16	17142128.707	1330206.886
SR-SS016B	Grid 16	17142129.987	1330291.576
SR-SS016C	Grid 16	17142091.074	1330245.147
SR-SS017A	Grid 17	17142130.067	1330349.816
SR-SS017B	Grid 17	17142134.646	1330437.999
SR-SS018A	Grid 18	17142135.805	1330489.648
SR-SS018B	Grid 18	17142143.17	1330498.455
SR-SS018C	Grid 18	17142088.803	1330532.004
SR-SS018D	Grid 18	17142049.047	1330490.919
SR-SS018E	Grid 18	17142047.743	1330573.696
SR-SS019A	Grid 19	17142135.912	1330641.629
SR-SS019B	Grid 19	17142128.907	1330722.478
SR-SS019C	Grid 19	17142088.163	1330682.341
SR-SS019D	Grid 19	17142050.318	1330639.362
SR-SS019E	Grid 19	17142053.788	1330718.352
SR-SS020A	Grid 20	17141987.310	1330641.784
SR-SS020B	Grid 20	17141984.938	1330721.111
SR-SS020C	Grid 20	17141940.388	1330680.892
SR-SS020D	Grid 20	17141893.821	1330636.628
SR-SS020E	Grid 20	17141901.694	1330690.898
SR-SS021A	Grid 21	17141856.894	1330616.916
SR-SS021B	Grid 21	17141857.308	1330673.779
SR-SS021C	Grid 21	17141775.109	1330629.331
SR-SS022A	Grid 22	17142282.941	1330209.314
SR-SS022B	Grid 22	17142280.991	1330289.824
SR-SS022C	Grid 22	17142232.919	1330244.537
SR-SS022D	Grid 22	17142195.260	1330204.118
SR-SS022E	Grid 22	17142196.508	1330288.644
SR-SS023A	Grid 23	17142279.126	1330350.189
SR-SS023B	Grid 23	17142280.479	1330433.108
SR-SS023C	Grid 23	17142235.479	1330398.300
SR-SS023D	Grid 23	17142195.446	1330353.048
SR-SS023E	Grid 23	17142191.13	1330396.594
SR-SS024A	Grid 24	17142282.372	1330058.053
SR-SS024B	Grid 24	17142281.251	1330143.882
SR-SS024C	Grid 24	17142237.832	1330100.026
SR-SS024D	Grid 24	17142197.344	1330061.399
SR-SS024E	Grid 24	17142194.763	1330143.514
SR-SS025A	Grid 25	17142432.372	1330058.053
SR-SS025B	Grid 25	17142431.251	1330143.882
SR-SS025C	Grid 25	17142387.832	1330100.026
SR-SS025D	Grid 25	17142347.344	1330061.399
SR-SS025E	Grid 25	17142344.763	1330143.514
SR-SS026A	Grid 26	17142432.941	1330209.314
SR-SS026B	Grid 26	17142430.991	1330289.824
SR-SS026C	Grid 26	17142382.919	1330244.537

TABLE 3-6

SAMPLE LOCATION COORDINATES
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 3 OF 3

Location	Area	Northing (feet)	Easting (feet)
SR-SS026D	Grid 26	17142345.260	1330204.118
SR-SS026E	Grid 26	17142346.508	1330288.644
SR-SS027A	Grid 27	17142464.87	1330373.07
SR-SS027B	Grid 27	17142430.479	1330433.108
SR-SS027C	Grid 27	17142467.86	1330373.80
SR-SS027D	Grid 27	17142345.446	1330353.048
SR-SS027E	Grid 27	17142339.453	1330435.115
SR-SS028A	Grid 28	17142432.372	1329907.463
SR-SS028B	Grid 28	17142431.251	1329993.292
SR-SS028C	Grid 28	17142387.832	1329949.436
SR-SS028D	Grid 28	17142347.344	1329910.809
SR-SS028E	Grid 28	17142344.763	1329992.924
SR-SS029A	Grid 29	17142282.816	1329908.796
SR-SS029B	Grid 29	17142253.94	1330001.36
SR-SS029C	Grid 29	17142229.52	1329935.624
SR-SS029D	Grid 29	17142197.788	1329912.142
SR-SS029E	Grid 29	17142195.207	1329994.256
SR-SS030A	Grid 30	17142133.011	1329910.728
SR-SS030B	Grid 30	17142130.745	1329994.253
SR-SS030C	Grid 30	17142093.599	1329943.076
SR-SS030D	Grid 30	17142051.515	1329901.653
SR-SS030E	Grid 30	17142048.046	1329984.125
SR-SS031A	Grid 31	17142583.89	1329887.165
SR-SS031B	Grid 31	17142580.617	1329991.595
SR-SS031C	Grid 31	17142537.198	1329947.739
SR-SS031D	Grid 31	17142491.96	1329941.878
SR-SS031E	Grid 31	17142494.129	1329991.227
SR-SS032A	Grid 32	17142600.67	1329777.303
SR-SS032B	Grid 32	17142624.31	1329853.193
SR-SS032C	Grid 32	17142537.863	1329799.400
SR-SS032D	Grid 32	17142527.48	1329826.35
SR-SS032E	Grid 32	17142530.36	1329856.991
SR-SS033A	Grid 33	17142391.79	1329722.92
SR-SS033B	Grid 33	17142401.65	1329825.856
SR-SS033C	Grid 33	17142337.35	1329811.826
SR-SS033D	Grid 33	17142358.56	1329734.113
SR-SS033E	Grid 33	17142344.733	1329842.943
SR-SS034A	Grid 34	17142282.746	1329758.771
SR-SS034B	Grid 34	17142281.626	1329844.600
SR-SS034C	Grid 34	17142238.207	1329800.743
SR-SS034D	Grid 34	17142197.719	1329762.117
SR-SS034E	Grid 34	17142195.138	1329844.231
SR-SB01	Grid 8	17141808.800	1330379.000
SR-SB02	Grid 3	17141995.500	1330240.900
SRMW 1	Grid 8	17141814.090	1330413.070
SRMW 2	Grid 3	17141976.390	1330287.810
SRMW 3	Grid 5	17141957.950	1330575.870

Note:
Coordinates are Texas State Plane South Zone (NAD83)

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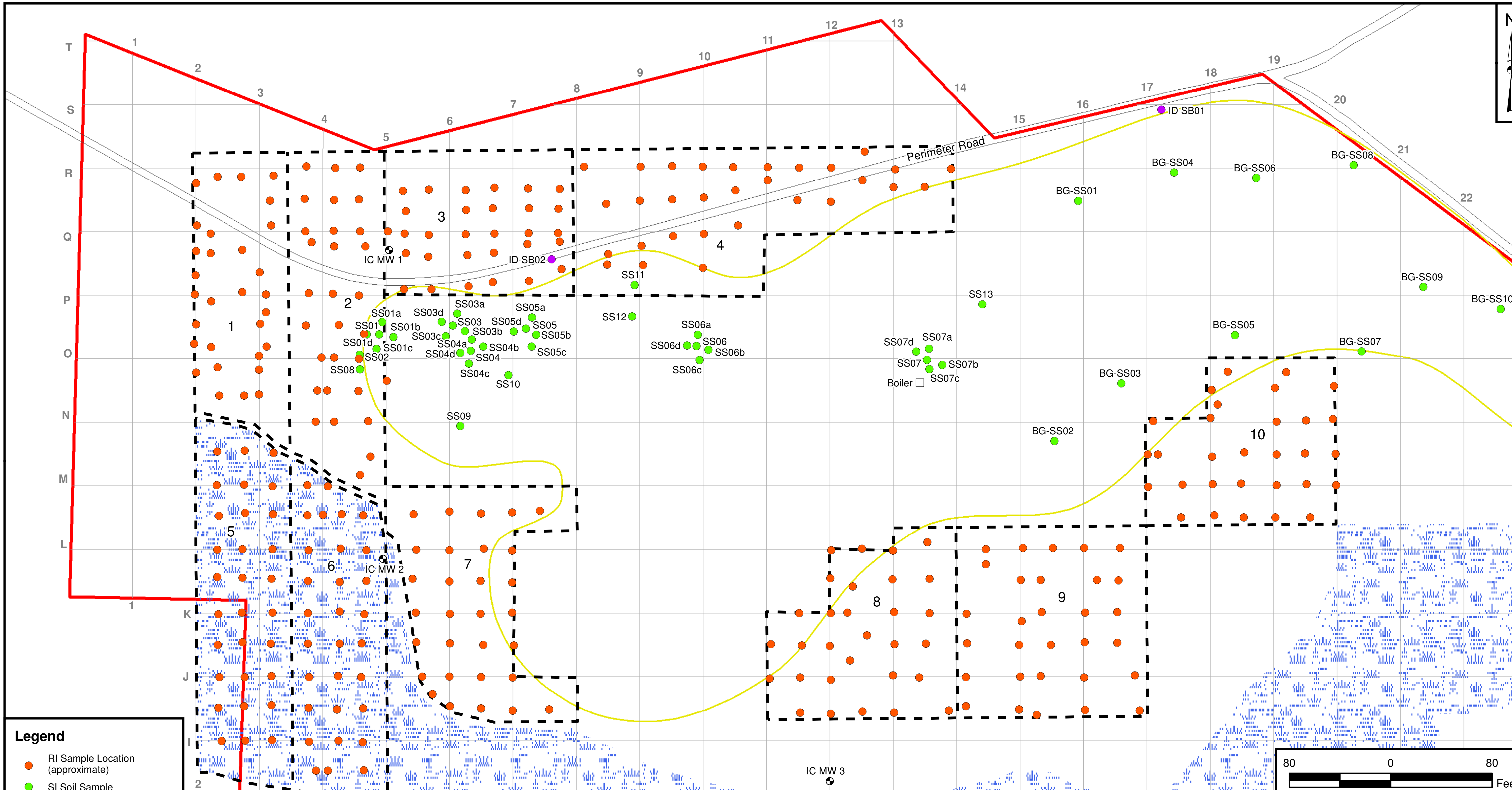

DRAWN BY	DATE
K. MOORE	10/11/11
CHECKED BY	DATE
F. GROSSKOPF	01/30/12
COST/SCHEDULE-AREA	
SCALE	
AS NOTED	

NAVFAC

SAMPLE LOCATIONS
INCINERATOR DISPOSAL SITE
NALF CABANISS
CORPUS CHRISTI, TEXAS

CONTRACT NUMBER	
CTO 0135	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO. 3-1	REV 0

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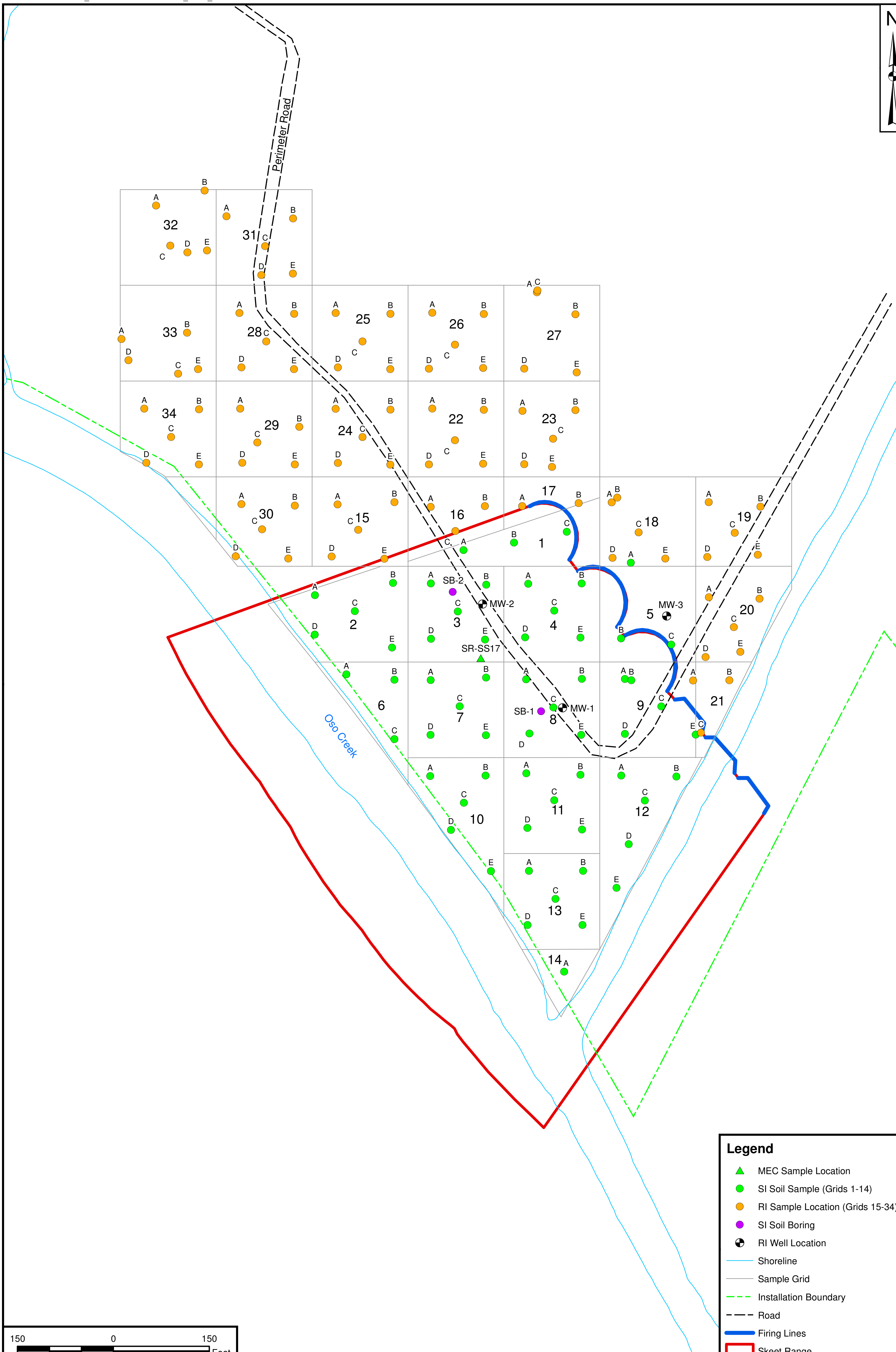
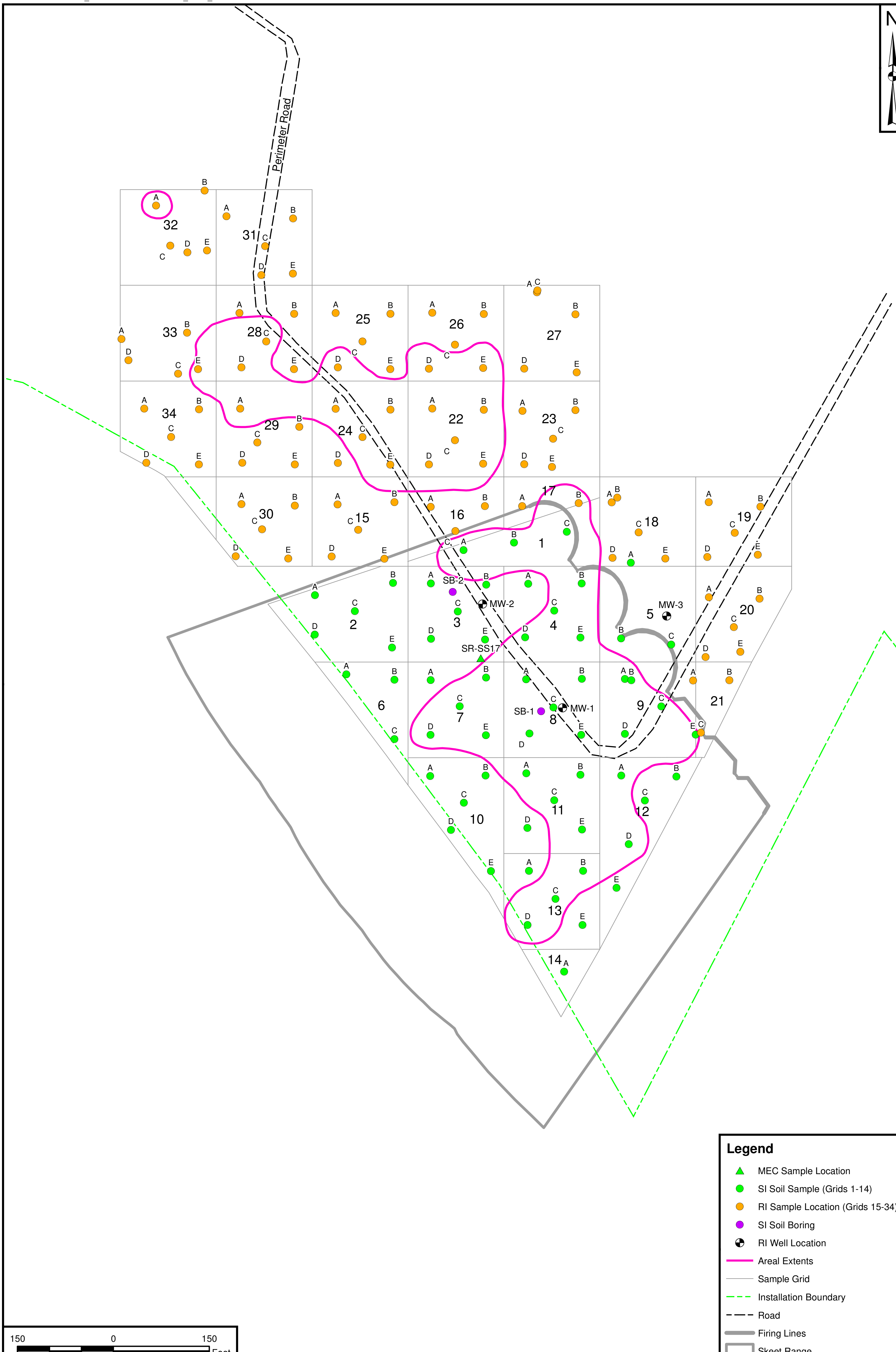


DRAWN BY K. MOORE — DATE 12/7/11 CHECKED BY F. GROSSKOPF — DATE 2/10/12 REVISED BY ___ — DATE ___ SCALE AS NOTED	NAVFAC	SAMPLE LOCATIONS SKEET RANGE SITE NALF CABANISS CORPUS CHRISTI, TEXAS	CONTRACT NUMBER 112G01821 — CTO NUMBER 0135 APPROVED BY ___ — DATE ___ APPROVED BY ___ — DATE ___ FIGURE NO. 3-2 — REV 0

PGH P:\GIS\CORPUS_CHRISTI\MXD\CABANISS_GRID_AREAL.MXD 2/17/12 KM



DRAWN BY	DATE
K. MOORE	1/20/12
CHECKED BY	DATE
F. GROSSKOPF	01/30/12
REVISED BY	DATE
S. PAXTON	01/30/12
SCALE	
AS NOTED	

NAVFAC

APPROXIMATE AREAL EXTENT OF VISIBLE SKEET
SKEET RANGE SITE
NALF CABANISS
CORPUS CHRISTI, TEXAS

CONTRACT NUMBER	CTO NUMBER
112G01821	0135
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO. 3-3	REV 0

4.0 REMEDIAL INVESTIGATION RESULTS – INCINERATOR DISPOSAL SITE

The objective of the MC RI was to determine the presence, nature and extent of MC COCs at the Incinerator Disposal Site, and to gather and compile data to support recommendations for site closure or corrective action. The RI activities consisted of: drilling soil borings, installing temporary groundwater monitoring wells, collecting surface and subsurface soil and groundwater samples, analyzing samples at a fixed-base laboratory, land surveying sample locations, and reporting results. Field activities associated with the RI were performed in 2010 and 2011; however, a summary of the soil analytical results of previous investigations conducted at the Incinerator Disposal Site are also discussed in this report.

The RI was conducted in general accordance with the TRRP rule (30 TAC 350) process. The TRRP rule specifies the assessment, monitoring, cleanup, reporting and other requirements for regulated sites in Texas. The UFP-SAP (Tetra Tech NUS, 2010a) details the RI process and activities.

The analytical data presented in this RI Report were subjected to a data validation process performed by Tetra Tech personnel to ensure the integrity and defensibility of the data. Samples collected for chemical analysis during the RI were prepared and analyzed by ALS Environmental (ALS), Katahdin Analytical Services, Inc. (Katahdin), and Test America. ALS, Katahdin, and Test America are DoD Environmental Laboratory Accreditation Program (ELAP) accredited, and National Environmental Laboratory Accreditation Program (NELAP) accredited.

For reporting purposes, detected concentrations of contaminants in analyzed soil and groundwater samples are discussed in this section. Calcium, iron, potassium, magnesium, and sodium are not considered constituents of concern from a human health standpoint, and are not discussed because regulatory criteria are not available for these constituents.

4.1 SUMMARY OF PREVIOUSLY FOUND CONTAMINANTS

A Site Inspection was conducted in 2009 by Tetra Tech. The SI Report (Tetra Tech NUS, 2009b) concluded that elevated metals concentrations were detected in surface soil at two locations potentially associated with MEC; therefore, further action was recommended. The SI Report also concluded that surface water and sediment were not impacted by site activities, and no further action was recommended. A summary of the SI soil analytical results is included in the discussion of the RI analytical results.

4.2 REMEDIAL INVESTIGATION ANALYTICAL PARAMETERS AND METHODS

Surface soil, subsurface soil, and groundwater samples were collected at the Incinerator Disposal Site and submitted to the laboratory for chemical analysis as described in the previous sections. Table 4-1 presents the analytical parameters and methods for samples collected during the RI.

The RI results are divided into discussions of surface soil, subsurface soil, and groundwater. Sediment and surface water samples were not collected during the RI based on the TCEQ concurrence that the SI sample results indicated no impacts to these media.

4.2.1 Soil Parameters and Methods

Soil samples collected during the RI for chemical analysis were analyzed for explosives and TAL metals using the methods as shown in Table 4-1. The MI samples for explosives and TAL metals analysis were prepared by ALS using USEPA Method 8330B. The soil samples were sieved and dried and the portion of the samples for explosives analysis was ground. The sieved and dried portion of the sample intended for TAL metals analysis was not ground. The prepared samples were then transferred to Katahdin, where the samples were extracted and analyzed.

Surface soil samples collected during the SI were analyzed for explosives and TAL metals. The soil samples were collected as discrete samples. In addition, surface soil samples collected were also analyzed for perchlorate. Soil samples collected in the vicinity of the boiler were also analyzed for PAHs. Soil samples were also collected during the SI for geotechnical analysis, and were analyzed for pH, total organic carbon, fraction organic content, total porosity, and effective porosity.

4.2.2 Groundwater Parameters and Methods

Groundwater samples collected during the RI were analyzed for explosives, TAL metals, perchlorate, and TDS. Table 4-1 lists the analytical methods used.

4.3 CRITICAL PAL DEVELOPMENT

Project Action Limits (PALs) were developed as part of the Data Quality Objective (DQO) scoping process. PALs are defined as the concentration of a COC at which some kind of action or decision would be made. For this RI, PALs are risk-based human health criteria: TRRP Tier 1 Residential PCLs. As described in TRRP (30 TAC 350) and the associated TCEQ guidance documents, sites being investigated for release of hazardous constituents are to be first evaluated against residential PCL criteria to determine if a release to the environment has occurred at the site. If the residential PCL criteria are exceeded in a particular media, then the site may require additional investigation or possibly remedial actions.

A PCL is the TCEQ regulatory standard for a concentration of a COC in a source medium that will protect a receptor at the point of exposure to that COC. PCLs are back calculated by determining what concentration a COC could remain at the source and still yield protective concentrations at the point of exposure. The PCL development process is different from the traditional baseline risk assessment process that starts with a known concentration in a source area and assesses the risk to the receptor at the point of exposure. As such, under TRRP, a baseline risk assessment is not required.

Analytical measurements of samples collected were directly compared against the critical PALs to identify exceedances that may require further assessment. All COCs were considered detected in a particular environmental medium if the analytical measurement was greater than the method detection limit (MDL) and the analytical response met the qualitative identification criteria recommended in the analytical method. COCs identified for each sample media are discussed in the following sections.

For the Residential land use scenario, surface soil is defined as the interval from 0 to 15 feet bgs, and subsurface soil is defined as the depth greater than 15 feet bgs. For surface soil, the two applicable human health exposure pathways are:

1) Combined inhalation of volatile emissions and particulates, dermal contact, and ingestion of COCs in surface soil (${}^{Tot}Soil_{Comb}$).
2) Leaching of COCs in surface soils to groundwater (${}^{GW}Soil_{Class\ 3}$).

For subsurface soil, the two applicable human health exposure pathways are:

1) Leaching of COCs in subsurface soils to groundwater (${}^{GW}Soil_{Class\ 3}$).
2) Inhalation of volatile emissions from COCs in subsurface soils (${}^{Air}Soil_{Inh\text{-}V}$).

For each applicable human health exposure pathway in soil (i.e., surface or subsurface soil), the critical PAL was determined by selecting the lowest value. For each metal COC, the lowest Tier 1 Residential PCL was also compared to the Texas-Specific Background Level, and the higher of the two values was selected as the critical PAL.

For groundwater, the critical PAL was established as the Tier 1 Residential Groundwater PCL for Class 3 groundwater (${}^{GW}GW_{Class\ 3}$).

Tables 4-2 and 4-3 present the PALs for soil and groundwater for the Incinerator Disposal site, respectively.

4.4 SURFACE SOIL ANALYTICAL RESULTS

Figure 3-1 shows the locations of the surface soil samples collected during the SI and RI. Table 4-4 presents the surface soil analytical results.

4.4.1 Explosives

Explosives were not detected at concentrations greater than the laboratory's sample-specific MDL in surface soil samples collected at the Incinerator Disposal Site during the SI or RI.

4.4.2 Perchlorate

Perchlorate was detected in nineteen surface soil samples at concentrations greater than the MDL in surface soil samples collected at the Incinerator Disposal Site during the SI. However, the concentrations detected were all less than the PAL.

Perchlorate in soil was not analyzed for during the RI.

4.4.3 PAHs

Fifteen PAHs were detected at concentrations greater than the MDL in surface soil samples collected at the Incinerator Disposal Site during the SI. However, the concentrations detected were all less than the respective PALs.

PAHs in the surface soil were not analyzed for during the RI.

4.4.4 TAL Metals

Four metals (antimony, cadmium, copper, and lead) were detected at concentrations greater than the PAL during the SI. The remaining metals were detected at concentrations greater than the MDL but less than the PAL, or were not detected at concentrations greater than the MDL. During the RI, there were no metal detections in the soil samples greater than the PAL. Figure 4-1 is a tag map depicting the exceedances detected during the SI.

During the SI sampling, antimony was detected in one surface soil sample at a concentration of 37 mg/kg. This concentration exceeds the PAL of 15 mg/kg. No exceedances of antimony were detected during the RI sampling activities.

During the SI sampling, cadmium was detected in four surface soil samples at concentrations ranging from 56.6 mg/kg to 250 mg/kg. These concentrations exceed the PAL of 52 mg/kg. No exceedances of cadmium were detected during the RI sampling activities.

During the SI sampling, copper was detected in three surface soil samples at concentrations ranging from 1,370 mg/kg to 1,570 mg/kg. These concentrations exceed the PAL of 550 mg/kg. No exceedances of copper were detected during the RI sampling activities.

During the SI sampling, lead was detected in eight surface soil samples at concentrations ranging from 450 mg/kg to 4,570 mg/kg. These concentrations exceed the PAL of 300 mg/kg. No exceedances of lead were detected during the RI sampling activities.

4.5 SUBSURFACE SOIL ANALYTICAL RESULTS

The TCEQ defines subsurface soils under TRRP as the unsaturated vadose zone between 15 feet bgs and initial groundwater. During the temporary monitoring well installation activities, soil samples were obtained between ground surface and initial water. Since initial groundwater was encountered less than 15 feet bgs, no subsurface soils were evaluated at the Incinerator Disposal Site.

4.6 GROUNDWATER ANALYTICAL RESULTS

Figure 3-1 shows the locations of the groundwater samples collected during the RI. Groundwater samples for chemical analysis were not collected during the SI. Table 4-5 presents the groundwater analytical results.

4.6.1 Explosives

Explosives were not detected at concentrations greater than the MDL in groundwater samples collected at the Incinerator Disposal Site during the RI.

4.6.2 Perchlorate

Perchlorate was not detected at concentrations greater than the MDL in groundwater samples collected at the Incinerator Disposal Site during the RI.

4.6.3 TAL Metals

The TAL metals were either not detected at concentrations greater than the MDL, or when detected the concentrations were less than the PAL.

4.6.4 Total Dissolved Solids

Total dissolved solids (TDS) were detected at concentrations ranging from 5700 mg/L to 16000 mg/L. There is no PAL for TDS.

4.7 GEOTECHNICAL RESULTS

Geotechnical parameters (total porosity, effective porosity, fraction organic carbon, total organic carbon, and pH) were analyzed during the SI for possible use in developing Tier 2 or 3 PCLs or for remedial design. The results are presented in Table 4-6.

TABLE 4-1

ANALYTICAL PROGRAM
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1

Analysis	Method (1)
SOIL	
Metals	SW-846 6010B/7471B
Explosives	SW-846 8330B
GROUNDWATER	
Metals	SW-846 6010C
Explosives	SW-846 8330
Perchlorate	SW-846 6850
TDS	160.1
IDW - SOIL	
TCLP Volatile Organics	SW-846 1311/5030 8260B
TCLP Semivolatile Organics	SW-846 1311/5030 8270C
TCLP Pesticides	SW-846 1311/3510 8081A
TCLP Volatile Herbicides	SW-846 1311/3510 8151A
TCLP Metals	SW-846 1311/5030 6010
Reactive Cyanide	SW-846 7.3.4
Reactive Sulfide	SW-846 7.3.4
pH	SW-846 9045C
IDW - WATER	
Volatile Organics	SW-846 1311/5030 8260B
Semivolatile Organics	SW-846 1311/5030 8270C
Pesticides	SW-846 1311/3510 8081A
Volatile Herbicides	SW-846 1311/3510 8151A
Metals	SW-846 1311/5030 6010
Reactive Cyanide	SW-846 7.3.4
Reactive Sulfide	SW-846 7.3.4
pH	SW-846 9040B

Notes:
(1) All methods from EPA SW-846 except as noted.
IDW=Investigative Derived Waste
TCLP=Toxicity Characteristic Leaching Procedure

TABLE 4-2

PROJECT ACTION LIMITS FOR SOIL
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1

PARAMETERS	TOTAL SOIL COMBINED (1)	GROUNDWATER PROTECTION CLASS 3 (1)	SOIL AIR INHALATION (1)	TEXAS-SPECIFIC BACKGROUND CONCENTRATION	PROJECT ACTION LIMIT
EXPLOSIVES (mg/kg)					
1,3,5-TRINITROBENZENE	2000	180	NA	NA	180
1,3-DINITROBENZENE	6.7	0.76	NA	NA	0.76
2,4,6-TRINITROTOLUENE	33	17	NA	NA	17
2,4-DINITROTOLUENE	6.9	0.53	NA	NA	6.9
2,6-DINITROTOLUENE	6.9	0.48	NA	NA	0.48
2-AMINO-4,6-DINITROTOLUENE	11	9.9	NA	NA	9.9
2-NITROTOLUENE	21	3.1	NA	NA	3.1
3-NITROTOLUENE	670	180	NA	NA	180
4-AMINO-2,6-DINITROTOLUENE	11	6.7	NA	NA	6.7
4-NITROTOLUENE	270	43	NA	NA	43
HMX	1600	230	NA	NA	230
NITROBENZENE	66	35	66	NA	35
RDX	43	3.7	NA	NA	3.7
TETRYL	270	110	NA	NA	110
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)					
ACENAPHTHENE	3000	24000	NA	NA	3000
ACENAPHTHYLENE	3800	41000	NA	NA	3800
ANTHRACENE	18000	690000	NA	NA	18000
BENZO(A)ANTHRACENE	5.7	1800	3700	NA	5.7
BENZO(A)PYRENE	0.56	760	850	NA	0.56
BENZO(B)FLUORANTHENE	5.7	6000	6100	NA	5.7
BENZO(G,H,I)PERYLENE	1800	1000000	NA	NA	1800
BENZO(K)FLUORANTHENE	57	62000	150000	NA	57
CHRYSENE	560	150000	590000	NA	560
DIBENZO(A,H)ANTHRACENE	0.55	1500	2000	NA	0.55
FLUORANTHENE	2300	190000	NA	NA	2300
FLUORENE	2300	30000	NA	NA	2300
INDENO(1,2,3-CD)PYRENE	5.7	17000	25000	NA	5.7
NAPHTHALENE	220	3100	270	NA	220
PHENANTHRENE	1700	42000	NA	NA	1700
PYRENE	1700	110000	NA	NA	1700
INORGANICS (mg/kg)					
ALUMINUM	65,000	1,000,000	NA	30,000	65,000
ANTIMONY	15	540	NA	1	15
ARSENIC	24	500	NA	5.9	24
BARIUM	8100	44000	NA	300	8100
BERYLLIUM	38	180	NA	1.5	38
CADMIUM	52	150	NA	NA	52
CALCIUM	NA	NA	NA	NA	NA
CHROMIUM	33000	240000	NA	30	33000
COBALT	21	660	NA	7	21
COPPER	550	100000	NA	15	550
IRON	NA	NA	NA	15000	NA
LEAD	500	300	NA	15	300
MAGNESIUM	NA	NA	NA	NA	NA
MANGANESE	3700	120000	NA	300	3700
MERCURY	3.6	0.78	4.6	0.04	0.78
NICKEL	840	16000	NA	10	840
POTASSIUM	NA	NA	NA	NA	NA
SELENIUM	310	230	NA	0.3	230
SILVER	97	48	NA	NA	48
SODIUM	NA	NA	NA	NA	NA
THALLIUM	6.3	170	NA	0.7	6.3
TIN	35000	1000000	NA	0.9	35000
VANADIUM	2.9	3400	NA	50	50
ZINC	9900	240000	NA	30	9900
MISCELLANEOUS PARAMETERS (mg/kg)					
PERCHLORATE	51	14	NA	NA	14

Notes:
1. TRRP Tier 1 Residential PCL, May 24, 2011
mg/kg - milligrams per kilogram
NA - criteria not available

TABLE 4-3

PROJECT ACTION LIMITS FOR GROUNDWATER
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1

PARAMETERS	GROUNDWATER INGESTION CLASS 1/2 (1)	GROUNDWATER INGESTION CLASS 3 (1)	PROJECT ACTION LIMIT
EXPLOSIVES (mg/L)			
1,3,5-TRINITROBENZENE	0.73	73	73
1,3-DINITROBENZENE	0.0024	0.24	0.24
2,4,6-TRINITROTOLUENE	0.012	1.2	1.2
2,4-DINITROTOLUENE	0.0013	0.13	0.13
2,6-DINITROTOLUENE	0.0013	0.13	0.13
2-AMINO-4,6-DINITROTOLUENE	0.0041	0.41	0.41
2-NITROTOLUENE	0.0041	0.41	0.41
3-NITROTOLUENE	0.24	24	24
4-AMINO-2,6-DINITROTOLUENE	0.0041	0.41	0.41
4-NITROTOLUENE	0.057	5.7	5.7
HMX	1.2	120	120
NITROBENZENE	0.049	4.9	4.9
RDX	0.0083	0.83	0.83
TETRYL	0.098	9.8	9.8
POLYCYCLIC AROMATIC HYDROCARBONS (mg/L)			
ACENAPHTHENE	1.5	150	150
ACENAPHTHYLENE	1.5	150	150
ANTHRACENE	7.3	730	730
BENZO(A)ANTHRACENE	0.0013	0.13	0.13
BENZO(A)PYRENE	0.0002	0.02	0.02
BENZO(B)FLUORANTHENE	0.0013	0.13	0.13
BENZO(G,H,I)PERYLENE	0.73	73	73
BENZO(K)FLUORANTHENE	0.013	1.3	1.3
CHRYSENE	0.13	13	13
DIBENZO(A,H)ANTHRACENE	0.0002	0.02	0.02
FLUORANTHENE	0.98	98	98
FLUORENE	0.98	98	98
INDENO(1,2,3-CD)PYRENE	0.0013	0.13	0.13
NAPHTHALENE	0.49	49	49
PHENANTHRENE	0.73	73	73
PYRENE	0.73	73	73
INORGANICS (mg/L)			
ALUMINUM	24	2,400	2,400
ANTIMONY	0.006	0.6	0.6
ARSENIC	0.01	1	1
BARIUM	2	200	200
BERYLLIUM	0.004	0.4	0.4
CADMIUM	0.005	0.5	0.5
CALCIUM	NA	NA	NA
CHROMIUM	0.1	10	10
COBALT	0.0073	0.73	0.73
COPPER	1.3	130	130
IRON	NA	NA	NA
LEAD	0.015	1.5	1.5
MAGNESIUM	NA	NA	NA
MANGANESE	1.1	110	110
MERCURY	0.002	0.2	0.2
NICKEL	0.49	49	49
POTASSIUM	NA	NA	NA
SELENIUM	0.05	5	5
SILVER	0.12	12	12
SODIUM	NA	NA	NA
THALLIUM	0.002	0.2	0.2
TIN	15	1500	1500
VANADIUM	0.0017	0.17	0.17
ZINC	7.3	730	730
MISCELLANEOUS PARAMETERS (mg/L)			
PERCHLORATE	0.017	1.7	1.7

Notes:
1. TRRP Tier 1 Residential PCL, May 24, 2011
mg/L - milligrams per liter
NA - criteria not available

TABLE 4-4

SOIL ANALYTICAL RESULTS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

SAMPLE ID	PROJECT ACTION LIMIT [1]	BG-ID-SS01	BG-ID-SS02	BG-ID-SS03	BG-ID-SS04	BG-ID-SS05	BG-ID-SS05-D	BG-ID-SS06	BG-ID-SS07	BG-ID-SS08
SAMPLE DATE		20080428	20080429	20080429	20080429	20080429	20080429	20080429	20080429	20080429
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	NORMAL	NORMAL	NORMAL
MATRIX		SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE		BACKGROUND	BACKGROUND	BACKGROUND	BACKGROUND	BACKGROUND	BACKGROUND	BACKGROUND	BACKGROUND	BACKGROUND
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
EXPLOSIVES (mg/kg)										
1,3,5-TRINITROBENZENE	180	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,3-DINITROBENZENE	0.76	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2,4,6-TRINITROTOLUENE	17	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2,4-DINITROTOLUENE	0.53	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2,6-DINITROTOLUENE	0.48	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2-AMINO-4,6-DINITROTOLUENE	9.9	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2-NITROTOLUENE	3.1	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
3-NITROTOLUENE	180	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
4-AMINO-2,6-DINITROTOLUENE	6.7	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
4-NITROTOLUENE	43	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
HMX	230	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
NITROBENZENE	35	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
RDX	3.7	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
TETRYL	110	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)										
ACENAPHTHENE	3000	0.014 U	0.014 U	0.0131 U	0.0148 U	0.0143 U	0.0142 U	0.015 U	0.0136 U	0.0147 U
ACENAPHTHYLENE	3800	0.0126 U	0.0126 U	0.0118 U	0.0133 U	0.0128 U	0.0127 U	0.0135 U	0.0122 U	0.0132 U
ANTHRACENE	18000	0.0114 J	0.0084 U	0.0112 J	0.00885 U	0.00854 U	0.00849 U	0.00897 U	0.00815 U	0.00877 U
BENZO(A)ANTHRACENE	5.7	0.0126 U	0.0208 J	0.0428	0.0237 J	0.0128 U	0.0127 U	0.0135 U	0.0122 U	0.0225 J
BENZO(A)PYRENE	0.56	0.0129 J	0.0126 U	0.0118 U	0.0297 J	0.0216 J	0.0127 U	0.0274 J	0.0122 U	0.0253 J
BENZO(B)FLUORANTHENE	5.7	0.0241 J	0.0477	0.108	0.0588	0.0226 J	0.0127 U	0.0368 J	0.0122 U	0.0481
BENZO(G,H,I)PERYLENE	1800	0.0126 U	0.0126 U	0.0118 U	0.0133 U	0.0128 U	0.0127 U	0.0135 U	0.0122 U	0.0132 U
BENZO(K)FLUORANTHENE	57	0.0126 U	0.0126 U	0.0118 U	0.0133 U	0.021 J	0.0127 U	0.0225 J	0.0122 U	0.0132 U
CHRYSENE	560	0.0144 J	0.0247 J	0.051	0.0211 J	0.0192 J	0.0127 U	0.0245 J	0.0122 U	0.026 J
DIBENZO(A,H)ANTHRACENE	0.55	0.0126 U	0.0126 U	0.0118 U	0.0133 U	0.0128 U	0.0127 U	0.0135 U	0.0122 U	0.0132 U
FLUORANTHENE	2300	0.0228 J	0.0373 J	0.041	0.0256 J	0.0151 J	0.0127 U	0.0272 J	0.0125 J	0.0378 J
FLUORENE	2300	0.0126 U	0.0126 U	0.0118 U	0.0133 U	0.0128 U	0.0127 U	0.0135 U	0.0122 U	0.0132 U
INDENO(1,2,3-CD)PYRENE	5.7	0.0126 U	0.0126 U	0.0118 U	0.0133 U	0.0128 U	0.0127 U	0.0135 U	0.0122 U	0.0132 U
NAPHTHALENE	220	0.0126 U	0.0126 U	0.0118 U	0.0133 U	0.0128 U	0.0127 U	0.0135 U	0.0122 U	0.0132 U
PHENANTHRENE	1700	0.0126 U	0.0129 J	0.0118 U	0.0133 U	0.0128 U	0.0127 U	0.0135 U	0.0122 U	0.0179 J
PYRENE	1700	0.02 J	0.0334 J	0.0429	0.0237 J	0.0146 J	0.0133 U	0.0263 J	0.0128 U	0.0317 J
INORGANICS (mg/kg)										
ALUMINUM	65,000	8490	7570	7500	10700	9560	9950	9730	10800	10400
ANTIMONY	15	0.481 UR	0.502 UR	0.449 UR	0.514 UR	0.487 UR	0.5 UR	0.523 UR	0.472 UR	0.508 UR
ARSENIC	24	3	2.9	3.3	2.7	3.5	3.7	3.3	3.4	3.3
BARIUM	8100	103	108	123	118	138	117	139	123	154
BERYLLIUM	38	0.57	0.53	0.49	0.75	0.65	0.66	0.68	0.7	0.66
CADMIUM	52	0.23	0.61	0.75	0.15	0.16	0.13	0.88	0.25	0.13
CALCIUM	NA	5480 J	22400 J	29800 J	6970 J	16700 J	14800 J	13300 J	10200 J	29300 J
CHROMIUM	33000	6.8	7.1	7.4	8	7.2	7.1	7.6	7.9	7.3
COBALT	21	3.2	3.2	3.8	3.8	3.7	3.9	4.2	3.9	3.5
COPPER	550	11.8	10.7	14.9	11.9	8.7	9.1	13.1	8.2	11.4
IRON	NA	5610	5410	5220	6390	6310	6430	6580	6650	6700
LEAD	300	25.3 J	91.9 J	72.2 J	14.9 J	14.4 J	13.5 J	18.5 J	15.9 J	11.7 J
MAGNESIUM	NA	3020	2720	2620	3750	2960	2970	3300	3490	3090
MANGANESE	3700	234 J	223 J	340 J	299 J	300 J	229 J	264 J	268 J	226 J
MERCURY	0.78	0.024	0.023	0.029	0.021	0.014	0.013	0.026	0.0061	0.022
NICKEL	840	5.5	5.5	6.4	6.7	5.6	5.5	6.5	6.7	5.4
POTASSIUM	NA	2950	2690	2760	3990	2660	2680	3140	3400	3050
SELENIUM	230	2.7	2.4	2.7	3	2.6	2.5	2.5	2.6	2.8
SILVER	48	0.22	0.42	0.62	0.28	0.28	0.25	0.39	0.26	0.43
SODIUM	NA	84.1 J	103 J	116 J	168 J	104 J	102 J	111 J	91.6 J	113 J
THALLIUM	6.3	0.603 U	0.628 U	0.582 U	0.663 U	0.637 U	0.619 U	0.657 U	0.595 U	0.646 U
TIN	35000	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	50	12.7	10.9	12.2	14.2	17.5	17.6	16.6	16.2	17.4
ZINC	9900	66.8	79.1	93.2	60.4	52.5	54.1	91.4	44.8	67.9
MISCELLANEOUS PARAMETERS (mg/kg)										
PERCHLORATE	14	0.00081 J	0.000632 U	0.00059 U	0.000664 U	0.000753 J	0.000637 U	0.000674 U	0.00122 J	0.000656 U
GEOTECHNICAL										
EFFECTIVE POROSITY (%)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL POROSITY (%)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FRACTION ORGANIC CARBON (g/g)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON (mg/kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PH (S.U.)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1. Project Action Limits from Table 4-2
Highlight - indicates exceedance of PAL
mg/kg - milligrams per kilogram
NA - criteria not available or parameter not analyzed for
Analytical Result Qualifiers:
U - not detected
UR - not detected, rejected data
J - estimated result
L - biased low
H - biased high

TABLE 4-4

SOIL ANALYTICAL RESULTS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

SAMPLE ID		BG-ID-SS09	BG-ID-SS09-D	BG-ID-SS10	BG-ID-SS10-D	ID-SS0010001	ID-SS0020001	ID-SS0030001	ID-SS0040001	ID-SS0050001
SAMPLE DATE		20080430	20080430	20080430	20080430	20110623	20110625	20110626	20110626	20110624
SAMPLE CODE		ORIG	DUP	ORIG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX	PROJECT ACTION LIMIT [1]	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE		BACKGROUND	BACKGROUND	BACKGROUND	BACKGROUND	MULTI-INCREMENT	MULTI-INCREMENT	MULTI-INCREMENT	MULTI-INCREMENT	MULTI-INCREMENT
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
EXPLOSIVES (mg/kg)										
1,3,5-TRINITROBENZENE	180	0.05 U	0.05 U	0.05 U	0.05 U	0.0067 U	0.0069 U	0.007 U	0.0062 U	0.0069 U
1,3-DINITROBENZENE	0.76	0.05 U	0.05 U	0.05 U	0.05 U	0.0062 U	0.0064 U	0.0064 U	0.0058 U	0.0064 U
2,4,6-TRINITROTOLUENE	17	0.05 U	0.05 U	0.05 U	0.05 U	0.0067 U	0.0069 U	0.007 U	0.0062 U	0.0069 U
2,4-DINITROTOLUENE	0.53	0.05 U	0.05 U	0.05 U	0.05 U	0.015 U	0.015 U	0.016 U	0.014 U	0.015 U
2,6-DINITROTOLUENE	0.48	0.05 U	0.05 U	0.05 U	0.05 U	0.027 U	0.028 U	0.028 U	0.025 U	0.028 U
2-AMINO-4,6-DINITROTOLUENE	9.9	0.05 U	0.05 U	0.05 U	0.05 U	0.021 U	0.022 U	0.022 U	0.02 U	0.022 U
2-NITROTOLUENE	3.1	0.05 U	0.05 U	0.05 U	0.05 U	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U
3-NITROTOLUENE	180	0.05 U	0.05 U	0.05 U	0.05 U	0.008 U	0.0082 U	0.0082 U	0.0074 U	0.0081 U
4-AMINO-2,6-DINITROTOLUENE	6.7	0.05 U	0.05 U	0.05 U	0.05 U	0.017 U	0.018 U	0.018 U	0.016 U	0.017 U
4-NITROTOLUENE	43	0.05 U	0.05 U	0.05 U	0.05 U	0.027 U	0.028 U	0.028 U	0.025 U	0.028 U
HMX	230	0.05 U	0.05 U	0.05 U	0.05 U	0.0086 U	0.0089 U	0.0089 U	0.008 U	0.0088 U
NITROBENZENE	35	0.05 U	0.05 U	0.05 U	0.05 U	0.022 U	0.023 U	0.023 U	0.02 U	0.022 U
RDX	3.7	0.05 U	0.05 U	0.05 U	0.05 U	0.0068 U	0.007 U	0.0071 U	0.0063 U	0.007 U
TETRYL	110	0.05 U	0.05 U	0.05 U	0.05 U	0.0054 U	0.0056 U	0.0056 U	0.005 U	0.0055 U
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)										
ACENAPHTHENE	3000	0.0149 U	0.0277 J	0.0141 U	0.0142 U	NA	NA	NA	NA	NA
ACENAPHTHYLENE	3800	0.0134 U	0.0232 J	0.0127 U	0.0128 U	NA	NA	NA	NA	NA
ANTHRACENE	18000	0.0089 U	0.0512	0.00845 U	0.00851 U	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	5.7	0.037 J	0.126	0.0199 J	0.0698	NA	NA	NA	NA	NA
BENZO(A)PYRENE	0.56	0.0495 J	0.236 J	0.0233 J	0.0973	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	5.7	0.0823 J	0.241 J	0.0451 J	0.17 J	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	1800	0.0514 J	0.188 J	0.0127 U	0.0772	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	57	0.0134 UJ	0.17 J	0.0127 U	0.0128 U	NA	NA	NA	NA	NA
CHRYSENE	560	0.0435 J	0.15 J	0.0177 J	0.0844	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	0.55	0.0134 U	0.013 U	0.0127 U	0.0128 U	NA	NA	NA	NA	NA
FLUORANTHENE	2300	0.0614 J	0.22 J	0.0303 J	0.106	NA	NA	NA	NA	NA
FLUORENE	2300	0.0134 U	0.0307 J	0.0127 U	0.0128 U	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	5.7	0.087 J	0.218 J	0.0127 UJ	0.121 J	NA	NA	NA	NA	NA
NAPHTHALENE	220	0.0134 U	0.0208 J	0.0127 U	0.0128 U	NA	NA	NA	NA	NA
PHENANTHRENE	1700	0.0184 J	0.0903	0.0127 U	0.0311 J	NA	NA	NA	NA	NA
PYRENE	1700	0.055 J	0.219 J	0.0273 J	0.0913	NA	NA	NA	NA	NA
INORGANICS (mg/kg)										
ALUMINUM	65,000	12700	11200	8060	8840	31400	24600	25500	23500	45500
ANTIMONY	15	0.515 UR	0.504 UR	0.493 UR	0.508 UR	0.15 J	0.06 J	0.06 UJ	0.05 UJ	0.16 J
ARSENIC	24	4.6	3.9	3	4	4.2	3.5	3.5	2.9	5.7
BARIUM	8100	177 J	163 J	137 J	132 J	256	182	154	128 J	424
BERYLLIUM	38	0.77	0.73	0.56	0.6	1	0.85	0.83	0.72 J	1.4
CADMIUM	52	0.18	0.23	0.12	0.122 U	0.2 J	0.3 J	0.15 J	0.27 J	0.52 J
CALCIUM	NA	17400	13600	18200	18200	NA	NA	NA	NA	NA
CHROMIUM	33000	8.9	9.2	5.8	6.7	19.7	15.8	15.2	15 J	28.3
COBALT	21	4.5	4.4	3.4	3.6	5.1	4.3	4.7 J	3.9 J	6.1
COPPER	550	8.7	8.7	7	7.6	12.2	12.7	10.7	10 J	16.2
IRON	NA	7680	7060	5560	6430	15500	12700	13600	11400	21300
LEAD	300	14.9 J	17.5 J	13 J	11.4 J	20.9	14.1	13.6	16.1 J	17.7
MAGNESIUM	NA	4010	3780	2550	2810	6780	5670	5980	5040	11200
MANGANESE	3700	284 H	294 H	211 H	216 H	300	254	281	276	341
MERCURY	0.78	0.036	0.029	0.015	0.016	0.02 U	0.01 U	0.01 U	0.02 J	0.02 J
NICKEL	840	7.4	7.1	5	5.6	11.4	9.3	9.9	8.8 J	14.8
POTASSIUM	NA	3180 H	3260 H	2300 H	2710 H	6290	5160	5400	5100	8820
SELENIUM	230	4	3.6	2.8	3.2	0.15 U	0.12 U	0.13 U	0.42 U	0.43 J
SILVER	48	0.42	0.45	0.31	0.4	0.05 J	0.02 U	0.11 J	0.29 J	0.02 U
SODIUM	NA	109	99.5	82.3	81.7	1080	228	302	210	8860
THALLIUM	6.3	0.668 U	0.62 U	0.619 U	0.608 U	0.08 UJ	0.06 UJ	0.07 UJ	0.06 U	0.08 U
TIN	35000	NA	NA	NA	NA	4.3 U	4.1 U	3.5 U	3.3 UJ	5 U
VANADIUM	50	19.5	17.2	14.1	16.8	29.3	23.1	24.6	22.9 J	38.9
ZINC	9900	60.1	96.2	40.9	46.1	61.2	53.9	48.1	42.3 J	77.8
MISCELLANEOUS PARAMETERS (mg/kg)										
PERCHLORATE	14	0.000991 J	0.00117 J	0.000635 U	0.000638 U	NA	NA	NA	NA	NA
GEOTECHNICAL										
EFFECTIVE POROSITY (%)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL POROSITY (%)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FRACTION ORGANIC CARBON (g/g)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON (mg/kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PH (S.U.)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1. Project Action Limits from Table 4-2
Highlight - indicates exceedance of PAL
mg/kg - milligrams per kilogram
NA - criteria not available or parameter not analyzed for
Analytical Result Qualifiers:
U - not detected
UR - not detected, rejected data
J - estimated result
L - biased low
H - biased high

TABLE 4-4

SOIL ANALYTICAL RESULTS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 3 OF 9

SAMPLE ID	PROJECT ACTION LIMIT [1]	ID-SS0050001-A	ID-SS0050001-B	ID-SS0050001-C	ID-SS0050001-D	ID-SS0050001-E	ID-SS0060001	ID-SS0070001	ID-SS0080001	ID-SS0090001
SAMPLE DATE		20110624	20110624	20110624	20110624	20110624	20110625	20110623	20110623	20110623
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX		SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE		MULTI-INCREMENT	MULTI-INCREMENT	MULTI-INCREMENT	MULTI-INCREMENT	MULTI-INCREMENT	MULTI-INCREMENT	MULTI-INCREMENT	MULTI-INCREMENT	MULTI-INCREMENT
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
EXPLOSIVES (mg/kg)										
1,3,5-TRINITROBENZENE	180	0.0072 U	0.0068 U	0.0073 U	0.0076 U	0.0072 U	0.0074 U	0.0067 U	0.0069 U	0.0062 U
1,3-DINITROBENZENE	0.76	0.0067 U	0.0063 U	0.0068 U	0.007 U	0.0066 U	0.0068 U	0.0062 U	0.0064 U	0.0057 U
2,4,6-TRINITROTOLUENE	17	0.0072 U	0.0068 U	0.0073 U	0.0076 U	0.0072 U	0.0074 U	0.0067 U	0.0069 U	0.0062 U
2,4-DINITROTOLUENE	0.53	0.016 U	0.015 U	0.016 U	0.017 U	0.016 U	0.016 U	0.015 U	0.015 U	0.014 U
2,6-DINITROTOLUENE	0.48	0.029 U	0.028 U	0.03 U	0.03 U	0.029 U	0.03 U	0.027 U	0.028 U	0.025 U
2-AMINO-4,6-DINITROTOLUENE	9.9	0.022 U	0.021 U	0.023 U	0.024 U	0.022 U	0.023 U	0.021 U	0.022 U	0.019 U
2-NITROTOLUENE	3.1	0.013 U	0.012 U	0.013 U	0.014 U	0.013 U	0.013 U	0.012 U	0.012 U	0.011 U
3-NITROTOLUENE	180	0.0085 U	0.0081 U	0.0086 U	0.0089 U	0.0085 U	0.0087 U	0.0079 U	0.0082 U	0.0073 U
4-AMINO-2,6-DINITROTOLUENE	6.7	0.018 U	0.017 U	0.018 U	0.019 U	0.018 U	0.019 U	0.017 U	0.018 U	0.016 U
4-NITROTOLUENE	43	0.029 U	0.028 U	0.03 U	0.03 U	0.029 U	0.03 U	0.027 U	0.028 U	0.025 U
HMX	230	0.0092 U	0.0088 U	0.0094 U	0.0097 U	0.0092 U	0.0095 U	0.0086 U	0.0089 U	0.0079 U
NITROBENZENE	35	0.024 U	0.022 U	0.024 U	0.025 U	0.024 U	0.024 U	0.022 U	0.023 U	0.02 U
RDX	3.7	0.0073 U	0.007 U	0.0074 U	0.0077 U	0.0073 U	0.0075 U	0.0068 U	0.007 U	0.0063 U
TETRYL	110	0.0058 U	0.0055 U	0.0059 U	0.0061 U	0.0058 U	0.006 U	0.0054 U	0.0056 U	0.005 U
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)										
ACENAPHTHENE	3000	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	3800	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	5.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	0.56	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	5.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	1800	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	57	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	560	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	0.55	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	5.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	220	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA
INORGANICS (mg/kg)										
ALUMINUM	65,000	47500	46000	42000	45500	46200	41600	25000	22900	24500
ANTIMONY	15	0.28 J	0.25 J	0.06 U	0.3 J	0.09 J	0.11 U	0.26 J	0.1 J	0.16 J
ARSENIC	24	6	5.7	5.6	5.4	5.6	5	4	3.5	3.2
BARIUM	8100	423	448	436	417	450	420	328	177 J	223
BERYLLIUM	38	1.4	1.4	1.4	1.4	1.4	1.3	0.82	0.75 J	0.8
CADMIUM	52	0.01 U	0.01 U	0.45 J	0.25 J	0.21 J	0.01 U	0.27 J	0.35 J	0.04 U
CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	33000	31.5	31.5	25.8	28.6	29.4	28.7	15.8	17.1 J	16.1
COBALT	21	6.6	6.6	6	6.2	6.4	6.4	4.2	4.7 J	3.9
COPPER	550	15.6	15.8	14.9	15	15.3	14.2	9.5	8.3 J	9.3
IRON	NA	21500	20800	20300	21900	22400	20000	13000	13500	12600
LEAD	300	18.9	19.1	16.3	17.2	17.7	18.7	14.6	19.7 J	16.3
MAGNESIUM	NA	11300	11200	10800	10700	10800	10400	5720	5090	5980
MANGANESE	3700	391	381	328	320	363	385	257	293	228
MERCURY	0.78	0.02 J	0.02 J	0.02 J	0.02 J	0.02 J	0.03 J	0.005 U	0.02 J	0.02 U
NICKEL	840	15.6	16.1	14.5	14.8	14.6	14.5	9.5	10.7 J	9.2
POTASSIUM	NA	9030	8930	8320	9010	9070	8260	5090	4990	5620
SELENIUM	230	0.59 J	0.25 U	0.24 J	0.34 J	0.17 U	0.27 U	0.16 U	0.19 U	0.13 U
SILVER	48	0.04 U	0.04 U	0.03 U	0.03 U	0.03 U	0.11 J	0.02 U	0.02 UJ	0.07 J
SODIUM	NA	9050	9510	9410	9870	8790	5480	560	195	1060
THALLIUM	6.3	0.25 J	0.13 U	0.08 U	0.08 U	0.09 U	0.24 J	0.08 U	0.05 U	0.07 UJ
TIN	35000	4 U	4.3 U	4.7 U	4.6 U	4.8 U	4.2 U	4.2 U	3.6 UJ	3.8 U
VANADIUM	50	43	42.9	35.6	39.4	40.3	36.2	24.1	24.1 J	22.5
ZINC	9900	76.3	74.4	72.1	79.5	81.8	73.6	48.1	50.4 J	49.2
MISCELLANEOUS PARAMETERS (mg/kg)										
PERCHLORATE	14	NA	NA	NA	NA	NA	NA	NA	NA	NA
GEOTECHNICAL										
EFFECTIVE POROSITY (%)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL POROSITY (%)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FRACTION ORGANIC CARBON (g/g)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON (mg/kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PH (S.U.)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1. Project Action Limits from Table 4-2
Highlight - indicates exceedance of PAL
mg/kg - milligrams per kilogram
NA - criteria not available or parameter not analyzed for
Analytical Result Qualifiers:
U - not detected
UR - not detected, rejected data
J - estimated result
L - biased low
H - biased high

TABLE 4-4

SOIL ANALYTICAL RESULTS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

SAMPLE ID	PROJECT ACTION LIMIT [1]	ID-SS0100001	ID-SS01	ID-SS01A	ID-SS01B	ID-SS01C	ID-SS01D	ID-SS02	ID-SS03	ID-SS03-D
SAMPLE DATE		20110622	20080424	20080424	20080424	20080424	20080424	20080424	20080425	20080425
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP
MATRIX		SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE		MULTI-INCREMENT	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
EXPLOSIVES (mg/kg)										
1,3,5-TRINITROBENZENE	180	0.0072 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,3-DINITROBENZENE	0.76	0.0066 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2,4,6-TRINITROTOLUENE	17	0.0072 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2,4-DINITROTOLUENE	0.53	0.016 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2,6-DINITROTOLUENE	0.48	0.029 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2-AMINO-4,6-DINITROTOLUENE	9.9	0.022 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2-NITROTOLUENE	3.1	0.013 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
3-NITROTOLUENE	180	0.0085 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
4-AMINO-2,6-DINITROTOLUENE	6.7	0.018 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
4-NITROTOLUENE	43	0.029 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
HMX	230	0.0092 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
NITROBENZENE	35	0.024 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
RDX	3.7	0.0073 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
TETRYL	110	0.0058 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)										
ACENAPHTHENE	3000	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	3800	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	5.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	0.56	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	5.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	1800	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	57	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	560	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	0.55	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	5.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	220	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA
INORGANICS (mg/kg)										
ALUMINUM	65,000	22100	8110	8430	7920	8590	9370	6660	3790 H	2980 H
ANTIMONY	15	0.13 J	0.108 UR	0.109 UR	0.13 U	0.15 U	0.113 UR	0.112 UR	0.26 U	0.23 U
ARSENIC	24	3.6	7.3	7	6	9.5	3.9	2.8	1.9 L	1.7 L
BARIUM	8100	179 J	159 H	119 H	135 H	130 H	119 H	106 H	48.5	41.4
BERYLLIUM	38	0.74 J	0.37	0.37	0.41	0.46	0.53	0.4	0.15 L	0.13 L
CADMIUM	52	0.14 J	8.5	40.5	4.9	5	10	3.9	5.8 J	16.2 J
CALCIUM	NA	NA	32100	19900	19400	19200	8860	17600	12900	10300
CHROMIUM	33000	13.7	24.6 J	19.8 J	29.9 J	31.9 J	11.5 J	7.7 J	4.1 L	4.4 L
COBALT	21	3.9 J	3.6	3.5	4	4.8	3.2	2.6	1.2 L	1.1 L
COPPER	550	9 J	236	213	160	86.4	52.1	35.8	41.3 J	36.7 J
IRON	NA	11400	37900	36500	30600	37900	16800	8410	3170 H	2390 H
LEAD	300	13.4 J	42.5 J	39.3 J	52.7 J	34.9 J	17.9 J	17.1 J	21.4 L	20.1 L
MAGNESIUM	NA	5360	2710	2420	2840	2960	3040	2490	1310 H	1070 H
MANGANESE	3700	240	438	350	395	409	243	264	105	96.6
MERCURY	0.78	0.02 J	0.036	0.024	0.026	0.024	0.023	0.027	0.028	0.029
NICKEL	840	8.9 J	23.7 H	16.9 H	17.7 H	21.6 H	8.5 H	6 H	2.8 L	2.2 L
POTASSIUM	NA	4640	2050 H	1970 H	2350 H	2420 H	2490 H	2020 H	898 H	767 H
SELENIUM	230	0.27 U	4.8	13.1	3.6	11.2	5	2.1	0.88 L	0.91 L
SILVER	48	0.02 UJ	0.81	1.7	0.58 U	1.5	0.5 U	0.48 U	0.39 L	0.33 L
SODIUM	NA	1540	98.9	100	105	87.2	114	79.2	39.1 L	31.8 L
THALLIUM	6.3	0.09 U	0.539 U	0.556 U	0.542 U	0.665 U	0.544 U	0.535 U	0.524 UL	0.513 UL
TIN	35000	3.3 UJ	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	50	22.4 J	11.5	10.4	12.2	12.8	12.1	9.7	5.4 L	4.6 L
ZINC	9900	41.4 J	852 J	895 J	651 J	466 J	208 J	127 J	137 H	152 H
MISCELLANEOUS PARAMETERS (mg/kg)										
PERCHLORATE	14	NA	0.000545 U	NA	NA	NA	NA	0.000887 J	0.000857 J	0.000733 J
GEOTECHNICAL										
EFFECTIVE POROSITY (%)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL POROSITY (%)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FRACTION ORGANIC CARBON (g/g)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON (mg/kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PH (S.U.)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1. Project Action Limits from Table 4-2
Highlight - indicates exceedance of PAL
mg/kg - milligrams per kilogram
NA - criteria not available or parameter not analyzed for
Analytical Result Qualifiers:
U - not detected
UR - not detected, rejected data
J - estimated result
L - biased low
H - biased high

TABLE 4-4

SOIL ANALYTICAL RESULTS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

SAMPLE ID	PROJECT ACTION LIMIT [1]	ID-SS03A	ID-SS03B	ID-SS03C	ID-SS03D	ID-SS04	ID-SS04A	ID-SS04B	ID-SS04C	ID-SS04D
SAMPLE DATE		20080425	20080425	20080425	20080425	20080425	20080425	20080425	20080425	20080426
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX		SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
EXPLOSIVES (mg/kg)										
1,3,5-TRINITROBENZENE	180	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,3-DINITROBENZENE	0.76	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2,4,6-TRINITROTOLUENE	17	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2,4-DINITROTOLUENE	0.53	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2,6-DINITROTOLUENE	0.48	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2-AMINO-4,6-DINITROTOLUENE	9.9	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2-NITROTOLUENE	3.1	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
3-NITROTOLUENE	180	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
4-AMINO-2,6-DINITROTOLUENE	6.7	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
4-NITROTOLUENE	43	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
HMX	230	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
NITROBENZENE	35	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
RDX	3.7	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
TETRYL	110	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)										
ACENAPHTHENE	3000	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	3800	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	5.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	0.56	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	5.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	1800	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	57	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	560	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	0.55	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	5.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	220	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA
INORGANICS (mg/kg)										
ALUMINUM	65,000	5820 H	2900 H	2810 H	4380 H	12800 H	3800 H	12600 H	13500 H	14800
ANTIMONY	15	0.12 U	0.86 U	0.44 U	0.14 U	10.7 L	1.2 U	5.2 L	4.9 L	10.6 J
ARSENIC	24	2.6 L	2.5 L	1.7 L	2.5 L	11.3 L	2.4 L	4.1 L	9 L	18.8
BARIUM	8100	101	64	67.1	88	627	87.5	226	383	781 J
BERYLLIUM	38	0.34 L	0.13 L	0.16 L	0.28 L	0.22 L	0.18 L	0.52 L	0.4 L	0.27
CADMIUM	52	1.4 J	6.2 J	1.2 J	0.96 J	140 J	4 J	48.9 J	88.9 J	250
CALCIUM	NA	44000	21500	20100	30500	61000	43800	32600	37100	76100
CHROMIUM	33000	4.9 L	4.8 L	5.9 L	3.9 L	62.7 L	19.3 L	12.3 L	119 L	249
COBALT	21	2.6 L	1.3 L	1.4 L	2.2 L	4.4 L	1.7 L	3.7 L	4.7 L	6.5
COPPER	550	13.4 J	150 J	19.7 J	18.3 J	1370 J	53.4 J	427 J	480 J	1380 J
IRON	NA	4050 H	4900 H	2220 H	3060 H	39000 H	3330 H	8950 H	40500 H	77600
LEAD	300	20.5 L	253 L	29.2 L	20.1 L	1980 L	93.3 L	534 L	803 L	4570 L
MAGNESIUM	NA	2820 H	1210 H	1600 H	2280 H	3910 H	2300 H	3820 H	4230 H	4120
MANGANESE	3700	200	145	122	174	1630	159	745	853	1470
MERCURY	0.78	0.017	0.028	0.034	0.02	0.061	0.028	0.03	0.053	0.072
NICKEL	840	4.5 L	3.4 L	2.7 L	3.8 L	20.2 L	3.2 L	8.5 L	29.5 L	121
POTASSIUM	NA	2040 H	739 H	1050 H	1730 H	1510 H	1250 H	3210 H	2270 H	1660
SELENIUM	230	0.98 L	1.2 L	0.99 L	0.67 L	1.6 L	0.9 L	1.8 L	5 L	40.4
SILVER	48	0.74 L	0.43 L	0.4 L	0.54 L	3.5 L	0.68 L	1 L	1.6 L	3.1
SODIUM	NA	82 L	40 L	45.5 L	90 L	183 L	70.9 L	189 L	205 L	199
THALLIUM	6.3	0.538 UL	0.51 UL	0.531 UL	0.539 UL	2.7 UL	0.559 UL	0.563 UL	0.543 UL	0.83 U
TIN	35000	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	50	9.8 L	5.6 L	5.6 L	7.9 L	10.7 L	8.1 L	15 L	13.6 L	13.9
ZINC	9900	68 H	923 H	118 H	70.5 H	3550 H	1770 H	1600 H	1840 H	2660 J
MISCELLANEOUS PARAMETERS (mg/kg)										
PERCHLORATE	14	NA	NA	NA	NA	0.00186 J	NA	NA	NA	NA
GEOTECHNICAL										
EFFECTIVE POROSITY (%)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL POROSITY (%)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FRACTION ORGANIC CARBON (g/g)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON (mg/kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PH (S.U.)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1. Project Action Limits from Table 4-2
Highlight - indicates exceedance of PAL
mg/kg - milligrams per kilogram
NA - criteria not available or parameter not analyzed for
Analytical Result Qualifiers:
U - not detected
UR - not detected, rejected data
J - estimated result
L - biased low
H - biased high

TABLE 4-4

SOIL ANALYTICAL RESULTS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

SAMPLE ID	PROJECT ACTION LIMIT (1)	ID-SS05	ID-SS05A	ID-SS05B	ID-SS05C	ID-SS05D	ID-SS06	ID-SS06A	ID-SS06B	ID-SS06C
SAMPLE DATE		20080426	20080426	20080426	20080426	20080426	20080427	20080427	20080427	20080427
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX		SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
EXPLOSIVES (mg/kg)										
1,3,5-TRINITROBENZENE	180	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,3-DINITROBENZENE	0.76	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2,4,6-TRINITROTOLUENE	17	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2,4-DINITROTOLUENE	0.53	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2,6-DINITROTOLUENE	0.48	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2-AMINO-4,6-DINITROTOLUENE	9.9	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2-NITROTOLUENE	3.1	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
3-NITROTOLUENE	180	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
4-AMINO-2,6-DINITROTOLUENE	6.7	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
4-NITROTOLUENE	43	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
HMX	230	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
NITROBENZENE	35	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
RDX	3.7	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
TETRYL	110	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)										
ACENAPHTHENE	3000	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	3800	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	5.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	0.56	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	5.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	1800	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	57	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	560	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	0.55	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	5.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	220	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA
INORGANICS (mg/kg)										
ALUMINUM	65,000	7340	5530	7560	9840	6440	4360	8500	5610	10300
ANTIMONY	15	0.73 U	0.112 UJ	0.17 U	0.13 UJ	1.4 U	0.62 U	0.49 U	0.51 U	0.31 U
ARSENIC	24	4.3	3.4	3.3	3.3	5.7	4	3	2.5	3.1
BARIUM	8100	412 J	123 J	133 J	131 J	144 J	129 J	112 J	124 J	139 J
BERYLLIUM	38	0.44	0.31	0.43	0.47	0.34	0.26	0.42	0.38	0.62
CADMIUM	52	18.1	0.66	1.6	1.3	14	8.5	0.33	1.8	5.7
CALCIUM	NA	40600	48200	72800	58700	67600	31300	29500	17700	20600
CHROMIUM	33000	9.8	10.1	9.4	7.4	11	17.4	7.2	7.4	9.6
COBALT	21	3.1	2.7	3.1	3.1	3.1	2.5	2.5	2.4	3.7
COPPER	550	77.2 J	13.9 J	52.1 J	47.7 J	68.2 J	217 J	10 J	32.9 J	84.6 J
IRON	NA	6310	4380	7250	6550	9160	16400	5900	8090	8410
LEAD	300	159 L	34.9 L	43.6 L	35.7 L	188 L	83.1 L	20.2 L	31.4 L	39.7 L
MAGNESIUM	NA	3660	3590	3350	3880	3630	1930	2850	1960	3360
MANGANESE	3700	292	166	226	261	294	264	184	131	255
MERCURY	0.78	0.031	0.021	0.017	0.017	0.02	0.048	0.018	0.1	0.073
NICKEL	840	7.4	4.5	6.8	6.4	6.8	10.1	4.8	7.8	9.9
POTASSIUM	NA	2610	2110	2670	3080	2090	1580	2660	2040	3520
SELENIUM	230	2.6	1.6	2.7	2.9	3.8	8.5	3.3	4.8	4.7
SILVER	48	0.69	0.74	1.1	0.86	1	0.6	0.51	0.43	0.44
SODIUM	NA	105	82.6	127	175	190	77.1	97.4	70.5	97
THALLIUM	6.3	0.598 U	0.565 U	0.575 U	0.652 U	0.578 U	0.6 U	1 U	0.629 U	0.638 U
TIN	35000	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	50	14.3	12.9	13.6	12.6	13.1	9	12.9	11.1	16
ZINC	9900	497 J	82.3 J	112 J	102 J	409 J	2570 J	61.8 J	223 J	207 J
MISCELLANEOUS PARAMETERS (mg/kg)										
PERCHLORATE	14	0.00098 J	NA	NA	NA	NA	0.00227 J	NA	NA	NA
GEOTECHNICAL										
EFFECTIVE POROSITY (%)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL POROSITY (%)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FRACTION ORGANIC CARBON (g/g)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON (mg/kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PH (S.U.)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1. Project Action Limits from Table 4-2
Highlight - indicates exceedance of PAL
mg/kg - milligrams per kilogram
NA - criteria not available or parameter not analyzed for
Analytical Result Qualifiers:
U - not detected
UR - not detected, rejected data
J - estimated result
L - biased low
H - biased high

TABLE 4-4

SOIL ANALYTICAL RESULTS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

SAMPLE ID	PROJECT ACTION LIMIT (1)	ID-SS06D	ID-SS07	ID-SS07A	ID-SS07B	ID-SS07C	ID-SS07D	ID-SS08	ID-SS09	ID-SS10
SAMPLE DATE		20080427	20080428	20080428	20080429	20080428	20080428	20080425	20080426	20080426
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX		SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
EXPLOSIVES (mg/kg)										
1,3,5-TRINITROBENZENE	180	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,3-DINITROBENZENE	0.76	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2,4,6-TRINITROTOLUENE	17	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2,4-DINITROTOLUENE	0.53	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2,6-DINITROTOLUENE	0.48	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2-AMINO-4,6-DINITROTOLUENE	9.9	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2-NITROTOLUENE	3.1	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
3-NITROTOLUENE	180	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
4-AMINO-2,6-DINITROTOLUENE	6.7	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
4-NITROTOLUENE	43	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
HMX	230	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
NITROBENZENE	35	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
RDX	3.7	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
TETRYL	110	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)										
ACENAPHTHENE	3000	NA	0.0263 J	0.0245 J	0.0161 U	0.0569	0.0128 U	NA	NA	NA
ACENAPHTHYLENE	3800	NA	0.0116 U	0.0112 U	0.0145 U	0.0162 U	0.0605	NA	NA	NA
ANTHRACENE	18000	NA	0.0482	0.0579	0.0186 J	0.114	0.0354 J	NA	NA	NA
BENZO(A)ANTHRACENE	5.7	NA	0.164	0.197	0.0145 U	0.219	0.188	NA	NA	NA
BENZO(A)PYRENE	0.56	NA	0.247 J	0.213	0.225	0.264	0.28	NA	NA	NA
BENZO(B)FLUORANTHENE	5.7	NA	0.404 J	0.473	0.217	0.43	0.66	NA	NA	NA
BENZO(G,H,I)PERYLENE	1800	NA	0.302 J	0.224	1.16	0.198	0.307	NA	NA	NA
BENZO(K)FLUORANTHENE	57	NA	0.167 J	0.0112 U	0.0145 U	0.0162 U	0.0115 U	NA	NA	NA
CHRYSENE	560	NA	0.21	0.226	0.177	0.227	0.251	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	0.55	NA	0.0116 UJ	0.0112 U	0.0145 U	0.0162 U	0.0115 U	NA	NA	NA
FLUORANTHENE	2300	NA	0.298	0.428	0.0883	0.508	0.332	NA	NA	NA
FLUORENE	2300	NA	0.0204 J	0.0193 J	0.0145 U	0.0557	0.0135 J	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	5.7	NA	0.24 J	0.203	0.173	0.199	0.269	NA	NA	NA
NAPHTHALENE	220	NA	0.0212 J	0.0112 U	0.0145 U	0.0381 J	0.0115 U	NA	NA	NA
PHENANTHRENE	1700	NA	0.194	0.229	0.0438 J	0.415	0.148	NA	NA	NA
PYRENE	1700	NA	0.289	0.351	0.1	0.403	0.296	NA	NA	NA
INORGANICS (mg/kg)										
ALUMINUM	65,000	11700	16600	5770	8290	7020	6080	7290 H	8760	10900
ANTIMONY	15	0.131 UJ	37 J	2.3 J	10.6 J	2.6 J	1 U	0.3 U	0.12 UJ	0.123 UJ
ARSENIC	24	3.8	20	4.3	6.7	9.3	5.3	2.2 L	3.5	3.2
BARIUM	8100	140 J	372	122	834	227	312	107	101 J	135 J
BERYLLIUM	38	0.67	0.23	0.34	0.56	0.46	0.3	0.33 L	0.57	0.53
CADMIUM	52	0.33	56.6	6.1	14.6	3.3	5.8	18.5 J	0.49	0.92
CALCIUM	NA	16700	67700 J	50400 J	29100 J	17400 J	71000 J	9240	8530	8750
CHROMIUM	33000	8.4	97.5	23.2	29.7	33.6	46	4.8 L	6.8	8
COBALT	21	3.5	4	3.1	18.1	5.9	3.3	1.8 L	3.1	3.4
COPPER	550	9.4 J	1570	217	202	215	73.5	49.8 J	9.7 J	18.6 J
IRON	NA	7780	32900	9580	14900	36700	14600	3830 H	5870	6990
LEAD	300	21.4 L	4320 J	1220 J	877 J	179 J	450 J	11.1 L	18.5 L	45.5 L
MAGNESIUM	NA	3730	3920	2570	3030	3110	2570	2060 H	2720	3100
MANGANESE	3700	281	1200 J	348 J	689 J	411 J	346 J	170	228	306
MERCURY	0.78	0.044	0.088	0.06	0.071	0.16	0.057	0.072	0.019	0.045
NICKEL	840	6.1	26.6	7.7	13.3	20.8	13.5	3.8 L	5.1	7.9
POTASSIUM	NA	3830	1420	1860	2110	2560	1810	1730 H	3200	3270
SELENIUM	230	4.2	13.5	4.1	5.5	16.6	6	1.9 L	2.7	3.7
SILVER	48	0.34	2.8	1	0.86	0.89	0.97	0.22 L	0.26	0.37
SODIUM	NA	96.4	158 J	95.7 J	207 J	138 J	138 J	62.1 L	98.6	88.3
THALLIUM	6.3	0.648 U	0.579 U	0.549 U	0.699 U	0.788 U	0.571 U	1.05 UL	0.609 U	0.599 U
TIN	35000	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	50	18.4	12.6	11.6	12.5	13.5	12.3	10.8 L	13.9	11.8
ZINC	9900	68.2 J	7230	1530	2390	1590	818	134 H	78 J	137 J
MISCELLANEOUS PARAMETERS (mg/kg)										
PERCHLORATE	14	NA	0.00188 J	NA	NA	NA	NA	0.00113 J	0.00108 J	0.00102 J
GEOTECHNICAL										
EFFECTIVE POROSITY (%)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL POROSITY (%)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FRACTION ORGANIC CARBON (g/g)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON (mg/kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PH (S.U.)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1. Project Action Limits from Table 4-2
Highlight - indicates exceedance of PAL
mg/kg - milligrams per kilogram
NA - criteria not available or parameter not analyzed for
Analytical Result Qualifiers:
U - not detected
UR - not detected, rejected data
J - estimated result
L - biased low
H - biased high

TABLE 4-4

SOIL ANALYTICAL RESULTS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

SAMPLE ID	PROJECT ACTION LIMIT [1]	ID-SS11	ID-SS12	ID-SS12-D	ID-SS13	ID-SB0010507	ID-SB0011214	ID-SB01-0810	ID-SB0020507	ID-SB0020810
SAMPLE DATE		20080427	20080427	20080427	20080428	20110920	20110920	20080508	20110920	20110920
SAMPLE CODE		NORMAL	ORIG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX		SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX		SS	SS	SS	SS	SB	SB	SB	SB	SB
TOP DEPTH		0	0	0	0	5	12	8	5	8
BOTTOM DEPTH		0.5	0.5	0.5	0.5	7	14	10	7	10
EXPLOSIVES (mg/kg)										
1,3,5-TRINITROBENZENE	180	0.05 U	0.05 U	0.05 U	0.05 U	0.0061 U	0.007 U	NA	0.0077 U	0.0081 U
1,3-DINITROBENZENE	0.76	0.05 U	0.05 U	0.05 U	0.05 U	0.0057 U	0.0064 U	NA	0.0071 U	0.0075 U
2,4,6-TRINITROTOLUENE	17	0.05 U	0.05 U	0.05 U	0.05 U	0.0061 U	0.007 U	NA	0.0077 U	0.0081 U
2,4-DINITROTOLUENE	0.53	0.05 U	0.05 U	0.05 U	0.05 U	0.014 U	0.016 U	NA	0.017 U	0.018 U
2,6-DINITROTOLUENE	0.48	0.05 U	0.05 U	0.05 U	0.05 U	0.025 U	0.028 U	NA	0.031 U	0.032 U
2-AMINO-4,6-DINITROTOLUENE	9.9	0.05 U	0.05 U	0.05 U	0.05 U	0.019 U	0.022 U	NA	0.024 U	0.025 U
2-NITROTOLUENE	3.1	0.05 U	0.05 U	0.05 U	0.05 U	0.011 U	0.012 U	NA	0.014 U	0.014 U
3-NITROTOLUENE	180	0.05 U	0.05 U	0.05 U	0.05 U	0.0072 U	0.0082 U	NA	0.0091 U	0.0095 U
4-AMINO-2,6-DINITROTOLUENE	6.7	0.05 U	0.05 U	0.05 U	0.05 U	0.016 U	0.018 U	NA	0.02 U	0.02 U
4-NITROTOLUENE	43	0.05 U	0.05 U	0.05 U	0.05 U	0.025 U	0.028 U	NA	0.031 U	0.032 U
HMX	230	0.05 U	0.05 U	0.05 U	0.05 U	0.0079 U	0.009 U	NA	0.0099 U	0.01 U
NITROBENZENE	35	0.05 U	0.05 U	0.05 U	0.05 U	0.02 U	0.023 U	NA	0.025 U	0.026 U
RDX	3.7	0.05 U	0.05 U	0.05 U	0.05 U	0.0062 U	0.0071 U	NA	0.0078 U	0.0082 U
TETRYL	110	0.05 U	0.05 U	0.05 U	0.05 U	0.0049 U	0.0056 UJ	NA	0.0062 U	0.0065 U
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)										
ACENAPHTHENE	3000	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	3800	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	18000	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	5.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	0.56	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	5.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	1800	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	57	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	560	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	0.55	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	5.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	220	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA
INORGANICS (mg/kg)										
ALUMINUM	65,000	8170	8750	6900	8090	7450	7100	NA	12500	6580
ANTIMONY	15	0.121 UJ	0.163 UJ	0.116 UJ	1 U	0.15 J	0.07 UJ	NA	0.07 UJ	0.07 UJ
ARSENIC	24	3	2.8	2.2	3.4	3.3 J	7.5 J	NA	2.4 J	1.6 J
BARIUM	8100	119 J	144 J	102 J	148	314 J	41.3 J	NA	134 J	36.3 J
BERYLLIUM	38	0.49	0.5	0.37	0.53	0.28 J	0.43 J	NA	0.46 J	0.27 J
CADMIUM	52	3.2	9.2	5.3	0.49	0.36 J	0.04 J	NA	0.04 J	0.04 J
CALCIUM	NA	48300	44600	34700	41300 J	83300 J	62000 J	NA	17600 J	14300 J
CHROMIUM	33000	6.9	6.9	5.4	8.9	5.8	5.2	NA	8.1	4.9
COBALT	21	3.2	3.2	2.4	3.1	1.1 J	4.5	NA	3	1.6 J
COPPER	550	23.6 J	49.5 J	17.2 J	12.5	4	5	NA	4.6	3.2
IRON	NA	5650	5890	4660	5200	4340 J	9830 J	NA	7940 J	4660 J
LEAD	300	21.6 L	21.1 L	15.9 L	100 J	4.1 J	11 J	NA	5.6 J	4 J
MAGNESIUM	NA	3440	3940	2990	3280	2150 J	1900 J	NA	3280 J	1680 J
MANGANESE	3700	230	251	186	253 J	81.6 J	286 J	NA	157 J	55.9 J
MERCURY	0.78	0.021	0.013	0.015	0.15	0.005 U	0.005 U	NA	0.005 U	0.009 J
NICKEL	840	6.1	6.4	4.7	5.4	2.5 J	5.2	NA	5.3	3.4 J
POTASSIUM	NA	3260	3200	2450	2800	1230 J	1460 J	NA	3190 J	1850 J
SELENIUM	230	2.9	3	2.7	2.3	0.17 U	0.32 U	NA	0.17 U	0.18 U
SILVER	48	0.75	0.71	0.54	0.88	0.03 UJ	0.03 UJ	NA	0.03 U	0.03 U
SODIUM	NA	106	112	96	324 J	1350 J	1160 J	NA	2370 J	1430 J
THALLIUM	6.3	0.598 U	0.824 U	0.576 U	0.667 U	0.12 J	0.33 J	NA	0.2 J	0.2 J
TIN	35000	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	50	12.3	13.4	10.3	12.1	9.6 J	15.8 J	NA	13.6 J	11.2 J
ZINC	9900	82 J	63.4 J	46.2 J	130	12.4	13.9	NA	21	13.4
MISCELLANEOUS PARAMETERS (mg/kg)										
PERCHLORATE	14	0.00139 J	0.0035	0.00283	0.00291	NA	NA	NA	NA	NA
GEOTECHNICAL										
EFFECTIVE POROSITY (%)	NA	NA	NA	NA	NA	NA	NA	5.7	NA	NA
TOTAL POROSITY (%)	NA	NA	NA	NA	NA	NA	NA	34.9	NA	NA
FRACTION ORGANIC CARBON (g/g)	NA	NA	NA	NA	NA	NA	NA	0.001	NA	NA
TOTAL ORGANIC CARBON (mg/kg)	NA	NA	NA	NA	NA	NA	NA	1000	NA	NA
PH (S.U.)	NA	NA	NA	NA	NA	NA	NA	8.46	NA	NA

Notes:
1. Project Action Limits from Table 4-2
Highlight - indicates exceedance of PAL
mg/kg - milligrams per kilogram
NA - criteria not available or parameter not analyzed for
Analytical Result Qualifiers:
U - not detected
UR - not detected, rejected data
J - estimated result
L - biased low
H - biased high

TABLE 4-4

SOIL ANALYTICAL RESULTS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
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SAMPLE ID	PROJECT ACTION LIMIT (1)	ID-SB02-1213	ID-SB0030203	ID-SB0030508	ID-SB0030508-D
SAMPLE DATE		20080508	20110920	20110920	20110920
SAMPLE CODE		NORMAL	NORMAL	ORIG	DUP
MATRIX		SO	SO	SO	SO
SAMPLE TYPE		NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX		SB	SB	SB	SB
TOP DEPTH		12	2	5	5
BOTTOM DEPTH		13	3	8	8
EXPLOSIVES (mg/kg)					
1,3,5-TRINITROBENZENE	180	NA	0.0077 U	0.0079 U	0.0078 U
1,3-DINITROBENZENE	0.76	NA	0.0072 U	0.0073 U	0.0072 U
2,4,6-TRINITROTOLUENE	17	NA	0.0077 U	0.0079 U	0.0078 U
2,4-DINITROTOLUENE	0.53	NA	0.017 U	0.018 U	0.017 U
2,6-DINITROTOLUENE	0.48	NA	0.031 U	0.032 U	0.031 U
2-AMINO-4,6-DINITROTOLUENE	9.9	NA	0.024 U	0.025 U	0.024 U
2-NITROTOLUENE	3.1	NA	0.014 U	0.014 U	0.014 U
3-NITROTOLUENE	180	NA	0.0091 U	0.0093 U	0.0092 U
4-AMINO-2,6-DINITROTOLUENE	6.7	NA	0.02 U	0.02 U	0.02 U
4-NITROTOLUENE	43	NA	0.031 U	0.032 U	0.031 U
HMX	230	NA	0.0099 U	0.01 U	0.01 U
NITROBENZENE	35	NA	0.025 U	0.026 U	0.026 U
RDX	3.7	NA	0.0079 U	0.008 U	0.0079 U
TETRYL	110	NA	0.0062 U	0.0064 U	0.0063 U
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)					
ACENAPHTHENE	3000	NA	NA	NA	NA
ACENAPHTHYLENE	3800	NA	NA	NA	NA
ANTHRACENE	18000	NA	NA	NA	NA
BENZO(A)ANTHRACENE	5.7	NA	NA	NA	NA
BENZO(A)PYRENE	0.56	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	5.7	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	1800	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	57	NA	NA	NA	NA
CHRYSENE	560	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	0.55	NA	NA	NA	NA
FLUORANTHENE	2300	NA	NA	NA	NA
FLUORENE	2300	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	5.7	NA	NA	NA	NA
NAPHTHALENE	220	NA	NA	NA	NA
PHENANTHRENE	1700	NA	NA	NA	NA
PYRENE	1700	NA	NA	NA	NA
INORGANICS (mg/kg)					
ALUMINUM	65,000	NA	4630	3820	3090
ANTIMONY	15	NA	0.06 UJ	0.06 UJ	0.05 UJ
ARSENIC	24	NA	8.4 J	3.3 J	3.5 J
BARIUM	8100	NA	19.7 J	27.1 J	18.4 J
BERYLLIUM	38	NA	0.2 J	0.17 J	0.15 J
CADMIUM	52	NA	0.007 U	0.006 U	0.006 U
CALCIUM	NA	NA	5260 J	2220 J	1720 J
CHROMIUM	33000	NA	3.5	3.6	2.8
COBALT	21	NA	1.5 J	1.1 J	1 J
COPPER	550	NA	2 J	1.6 J	1.3 J
IRON	NA	NA	6450 J	4000 J	3640 J
LEAD	300	NA	3.2 J	2.9 J	2.7 J
MAGNESIUM	NA	NA	1190 J	988 J	765 J
MANGANESE	3700	NA	32.5 J	31.1 J	22.1 J
MERCURY	0.78	NA	0.005 U	0.005 U	0.005 U
NICKEL	840	NA	2.9 J	2.3 J	2 J
POTASSIUM	NA	NA	1030 J	876 J	713 J
SELENIUM	230	NA	0.23 U	0.14 U	0.13 U
SILVER	48	NA	0.02 UJ	0.02 U	0.02 U
SODIUM	NA	NA	1640 J	1580 J	1470 J
THALLIUM	6.3	NA	0.08 U	0.09 J	0.07 U
TIN	35000	NA	NA	NA	NA
VANADIUM	50	NA	15.3 J	8.2 J	8.4 J
ZINC	9900	NA	10.3	9.9	7.6
MISCELLANEOUS PARAMETERS (mg/kg)					
PERCHLORATE	14	NA	NA	NA	NA
GEOTECHNICAL					
EFFECTIVE POROSITY (%)	NA	5.7	NA	NA	NA
TOTAL POROSITY (%)	NA	34.9	NA	NA	NA
FRACTION ORGANIC CARBON (g/g)	NA	0.00065	NA	NA	NA
TOTAL ORGANIC CARBON (mg/kg)	NA	650	NA	NA	NA
PH (S.U.)	NA	9.15	NA	NA	NA

Notes:
1. Project Action Limits from Table 4-2
Highlight - indicates exceedance of PAL
mg/kg - milligrams per kilogram
NA - criteria not available or parameter not analyzed for
Analytical Result Qualifiers:
U - not detected
UR - not detected, rejected data
J - estimated result
L - biased low
H - biased high

TABLE 4-5

GROUNDWATER ANALYTICAL RESULTS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1

SAMPLE ID SAMPLE DATE SAMPLE CODE MATRIX SAMPLE TYPE	PROJECT ACTION LIMIT (1)	ID-GW001MW 20110922 ORIG GW NORMAL	ID-GW001MW-D 20110922 DUP GW NORMAL	ID-GW002MW 20110922 NORMAL GW NORMAL	ID-GW003MW 20110922 NORMAL GW NORMAL
EXPLOSIVES (mg/L)					
1,3,5-TRINITROBENZENE	73	0.00004 U	0.00004 U	0.00004 U	0.00004 U
1,3-DINITROBENZENE	0.24	0.00004 U	0.00004 U	0.00004 U	0.00004 U
2,4,6-TRINITROTOLUENE	1.2	0.00006 U	0.00006 U	0.00006 U	0.00006 U
2,4-DINITROTOLUENE	0.13	0.00005 U	0.00005 U	0.00005 U	0.00005 U
2,6-DINITROTOLUENE	0.13	0.00005 U	0.00005 U	0.00005 U	0.00005 U
2-AMINO-4,6-DINITROTOLUENE	0.41	0.00003 U	0.00003 U	0.00003 U	0.00003 U
2-NITROTOLUENE	0.41	0.00007 U	0.00007 U	0.00007 U	0.00007 U
3-NITROTOLUENE	24	0.00006 U	0.00006 U	0.00006 U	0.00006 U
4-AMINO-2,6-DINITROTOLUENE	0.41	0.00005 U	0.00005 U	0.00005 U	0.00005 U
4-NITROTOLUENE	5.7	0.00006 U	0.00006 U	0.00006 U	0.00006 U
HMX	120	0.00004 U	0.00004 U	0.00004 U	0.00004 U
NITROBENZENE	4.9	0.00007 U	0.00007 U	0.00007 U	0.00007 U
RDX	0.83	0.00004 U	0.00004 U	0.00004 U	0.00004 U
TETRYL	9.8	0.00006 U	0.00006 U	0.00006 U	0.00006 U
INORGANICS (mg/L)					
ALUMINUM	2400	0.37 U	0.592 J	0.37 U	0.503 J
ANTIMONY	0.6	0.032 UJ	0.0428 J	0.032 UJ	0.032 UJ
ARSENIC	1	0.03575 U	0.03575 U	0.0391 U	0.03575 U
BARIUM	200	0.0502 J	0.0422 J	0.0774 J	0.062 J
BERYLLIUM	0.4	0.0041 J	0.0025 U	0.0025 U	0.0028 U
CADMIUM	0.5	0.0014 J	0.00125 U	0.00125 U	0.00125 U
CALCIUM	NA	233	230	404	1100
CHROMIUM	10	0.009 U	0.009 U	0.009 U	0.009 U
COBALT	0.73	0.006 U	0.006 U	0.006 U	0.017 J
COPPER	130	0.01575 U	0.01575 U	0.0178 J	0.01575 U
IRON	NA	0.1355 U	0.1355 U	0.142 J	0.233 J
LEAD	1.5	0.02675 U	0.02675 U	0.029 J	0.02675 U
MAGNESIUM	NA	114	110	162	544
MANGANESE	110	0.141	0.157	1.14	3.68
MERCURY	0.2	0.00001 UJ	0.0001 UJ	0.00001 UJ	0.00001 UJ
NICKEL	49	0.007 U	0.007 U	0.0107 J	0.018 J
POTASSIUM	NA	6.95 J	31.8 J	37 J	97.7 J
SELENIUM	5	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ
SILVER	12	0.00675 U	0.00675 U	0.00675 U	0.00675 U
SODIUM	NA	1800	1800	3220	5390
THALLIUM	0.2	0.02675 U	0.02675 U	0.0268 U	0.02675 U
TIN	1500	0.0275 U	0.00275 U	0.0275 U	0.0275 U
VANADIUM	0.17	0.0281 J	0.0359 J	0.0188 J	0.00575 U
ZINC	730	0.0194 U	0.018 U	0.0258 U	0.0209 U
MISCELLANEOUS PARAMETERS (mg/L)					
PERCHLORATE	1.7	0.000082 U	0.000082 U	0.000082 U	0.000082 U
TOTAL DISSOLVED SOLIDS	NA	5700	NA	11000	16000

Notes:
1. TRRP Tier 1 Residential PCL, Class 3 Groundwater Ingestion $^{GW}GW_{Class3}$, May 24, 2011
Highlight - indicates exceedance of PAL
mg/L - milligrams per liter
NA - criteria not available or parameter not analyzed for
U - not detected
UR - not detected, rejected data
J - estimated
L - biased low

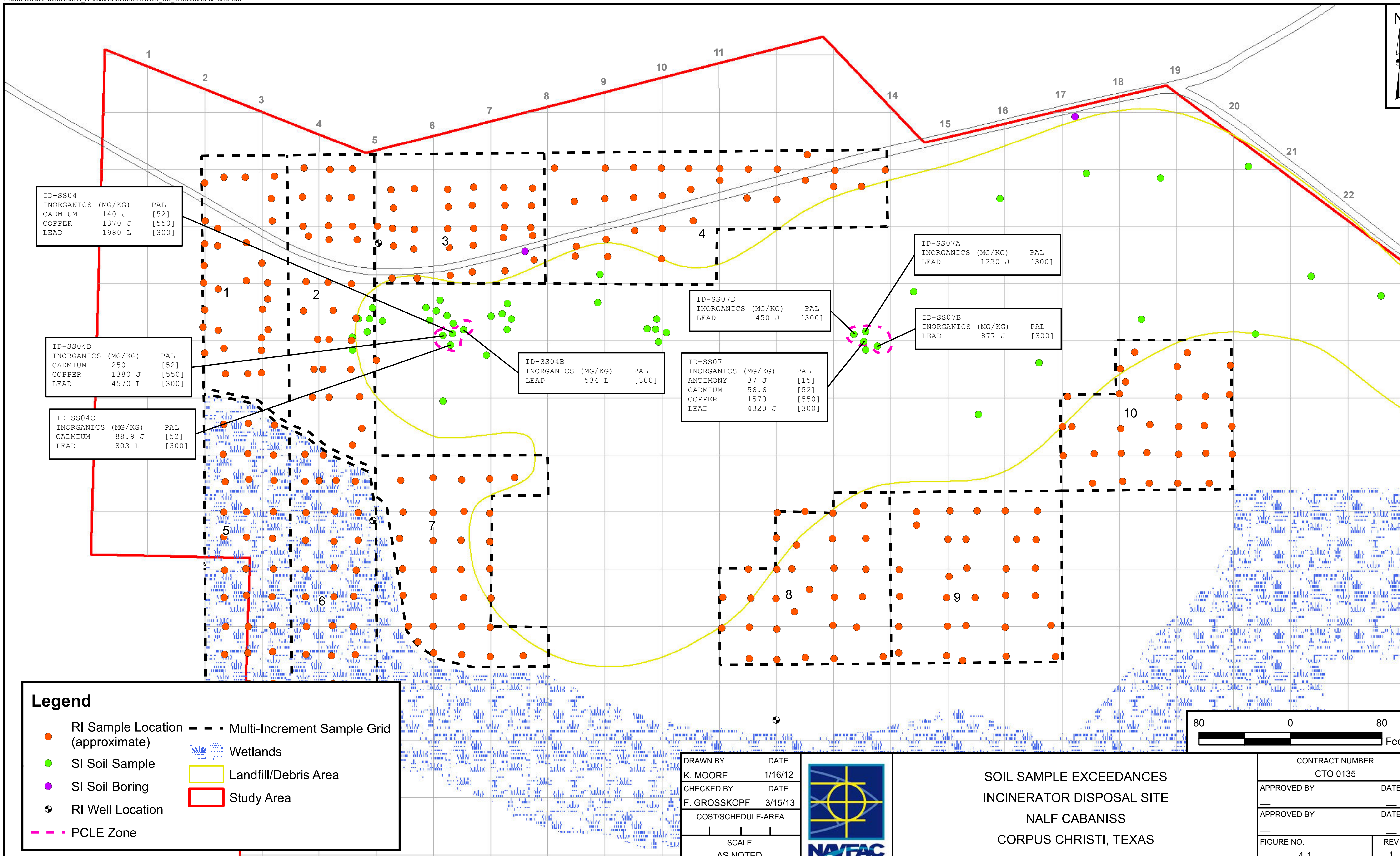
TABLE 4-6

GEOTECHNICAL SOIL ANALYTICAL RESULTS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1

SAMPLE ID	ID-SB01-0810	ID-SB02-1213
SAMPLE DATE	20080508	20080508
SAMPLE CODE	NORMAL	NORMAL
MATRIX	SO	SO
SAMPLE TYPE	NORMAL	NORMAL
SUBMATRIX	SB	SB
TOP DEPTH	8	12
BOTTOM DEPTH	10	13
GEOTECHNICAL		
EFFECTIVE POROSITY (%)	5.7	5.7
TOTAL POROSITY (%)	34.9	34.9
FRACTION ORGANIC CARBON (g/g)	0.001	0.00065
TOTAL ORGANIC CARBON (mg/kg)	1000	650
PH (S.U.)	8.46	9.15

Notes:
mg/kg - milligrams per kilogram
g/g - grams per gram

P:\GIS\COURPUSCHRISTI_NAS\MXD\INCINERATOR_SS_TAGS.MXD 3/15/13 KM



5.0 REMEDIAL INVESTIGATION RESULTS – FORMER SKEET RANGE

The objective of the RI was to determine the presence, nature and extent of MC COCs at the former Skeet Range, and to gather and compile data to support recommendations for site closure or corrective action. The RI activities consisted of: drilling soil borings, installing temporary groundwater monitoring wells, collecting surface and subsurface soil and groundwater samples, analyzing samples at a fixed-base laboratory, land surveying sample locations, and reporting results. Field activities associated with the RI were performed in 2010 and 2011; however, a summary of the soil analytical results of previous investigations conducted at the former Skeet Range are also discussed in this report.

The RI was conducted in general accordance with the TRRP rule (30 TAC 350) process. The TRRP rule specifies the assessment, monitoring, cleanup, reporting and other requirements for regulated sites in Texas. The UFP-SAP (Tetra Tech NUS, 2010b) details the RI process and activities.

The analytical data presented in this RI Report were subjected to a data validation process performed by Tetra Tech personnel to ensure the integrity and defensibility of the data. Samples collected for chemical analysis during the RI were prepared and analyzed by analyzed by Katahdin. Katahdin is DoD ELAP accredited and NELAP accredited.

For reporting purposes, detected concentrations of contaminants in analyzed soil and groundwater samples are discussed in this section. Calcium, iron, potassium, magnesium, and sodium are not considered constituents of concern from a human health standpoint, and are not discussed because regulatory criteria are not available for these constituents.

5.1 SUMMARY OF PREVIOUSLY FOUND CONTAMINANTS

A Site Inspection was conducted in 2009 by Tetra Tech. The SI Report (Tetra Tech NUS, 2009c) concluded that elevated PAH concentrations were detected in surface soil potentially associated with the Skeet Range; therefore, further action was recommended. The SI Report concluded that surface water and sediment were not impacted by site activities. The SI Report also concluded that the adjacent Pistol Range had not impacted the site. A summary of the SI soil analytical results for the former Skeet Range is included in the discussion of the RI analytical results.

5.2 REMEDIAL INVESTIGATION ANALYTICAL PARAMETERS AND METHODS

Surface soil, subsurface soil and groundwater samples were collected at the former Skeet Range and submitted to the laboratory for chemical analysis as described in the previous sections. Table 5-1 presents the analytical parameters and methods for samples collected during the RI.

The RI results are divided into discussions of surface soil, subsurface soil, and groundwater. Sediment and surface water samples were not collected during the RI based on the TCEQ concurrence that the SI sample results indicated no impacts to these media.

5.2.1 Soil Parameters and Methods

Soil samples collected during the RI for chemical analysis were analyzed for PAHs using the method shown in Table 5-1.

Surface soil samples collected during the SI for chemical analysis were analyzed for select metals (antimony, arsenic, copper, lead and zinc) and PAHs. Soil samples were also collected during the SI for geotechnical analysis and were analyzed for total porosity, effective porosity, fraction organic carbon, total organic carbon, and pH.

5.2.2 Groundwater Parameters and Methods

Groundwater samples collected during the RI for chemical analysis were analyzed for PAHs and TDS. Table 5-1 lists the analytical methods used.

5.3 CRITICAL PAL DEVELOPMENT

PALs were developed as part of the DQO scoping process. PALs are defined as the concentration of a COC at which some kind of action or decision would be made. For this RI, PALs are risk-based human health criteria: TRRP Tier 1 Residential PCLs. As described in TRRP (30 TAC 350) and the associated TCEQ guidance documents, sites being investigated for release of hazardous constituents are to be first evaluated against residential PCL criteria to determine if a release to the environment has occurred at the site. If the residential PCL criteria are exceeded in a particular media, then the site may require additional investigation or possibly remedial actions.

A PCL is the TCEQ regulatory standard for a concentration of a COC in a source medium that will protect a receptor at the point of exposure to that COC. PCLs are back calculated by determining what concentration a COC could remain at the source and still yield protective concentrations at the point of exposure. The PCL development process is different from the traditional baseline risk assessment process that starts with a known concentration in a source area and assesses the risk to the receptor at the point of exposure. As such, under TRRP, a baseline risk assessment is not required.

Analytical measurements of samples collected were directly compared against the critical PALs to identify exceedances that may require further assessment. All COCs were considered detected in a particular environmental medium if the analytical measurement was greater than the MDL and the analytical response met the qualitative identification criteria recommended in the analytical method. COCs identified for each sample media are discussed in the following sections.

For the Residential land use scenario, surface soil is defined as the interval from 0 to 15 feet bgs, and subsurface soil is defined as the depth greater than 15 feet bgs. For surface soil, the two applicable human health exposure pathways are:

1) Combined inhalation of volatile emissions and particulates, dermal contact, and ingestion of COCs in surface soil ($^{Tot}Soil_{Comb}$).
2) Leaching of COCs in surface soils to groundwater ($^{GW}Soil_{Class\ 3}$).

For subsurface soil, the two applicable human health exposure pathways are:

1) Leaching of COCs in subsurface soils to groundwater ($^{GW}Soil_{Class\ 3}$).
2) Inhalation of volatile emissions from COCs in subsurface soils ($^{Air}Soil_{Inh\text{-}V}$).

For each soil classification, the critical PAL was determined by selecting the lowest value. For each metal COC, the lowest Tier 1 Residential PCL also was compared to the Texas-Specific Background Level, and the higher of the two values was selected as the critical PAL.

For groundwater, the critical PAL was established as the Tier 1 Residential Groundwater PCL for Class 3 groundwater ($^{GW}GW_{Class\ 3}$).

Tables 5-2 and 5-3 present the PALs for soil and groundwater for the former Skeet Range, respectively.

5.4 SURFACE SOIL ANALYTICAL RESULTS

Figure 3-2 shows the locations of the soil samples collected during the SI and RI. Table 5-4 presents the surface soil analytical results.

5.4.1 PAHs

Five PAHs were detected at concentrations greater than the PAL during the SI and RI sampling. The remaining PAHs were detected at concentrations greater than the MDL but less than the PAL, or were not detected at concentrations greater than the MDL. Figure 5-1 is a tag map depicting the exceedances.

Benzo(a)anthracene was detected in ten soil samples at concentrations greater than the PAL ranging from 6 mg/kg to 158 mg/kg. These concentrations exceed the PAL of 5.7 mg/kg.

Benzo(a)pyrene was detected in 29 soil samples at concentrations greater than the PAL ranging from 0.615 mg/kg to 187 mg/kg. These concentrations exceed the PAL of 0.56 mg/kg.

Benzo(b)fluoranthene was detected in 16 soil samples at concentrations greater than the criteria ranging from 5.8 mg/kg to 323 mg/kg. These concentrations exceed the PAL of 5.7 mg/kg.

Dibenzo(a,h)anthracene was detected in nine soil samples at concentrations greater than the criteria ranging from 0.58 mg/kg to 2.5 mg/kg. These concentrations exceed the PAL of 0.55 mg/kg.

Indeno(1,2,3-cd)pyrene was detected in seven soil samples at concentrations greater than the criteria ranging from 7.76 mg/kg to 98.2 mg/kg. These concentrations exceed the PAL of 5.7 mg/kg.

5.4.2 Metals

During the SI sampling, one metal (lead) was detected in one surface soil sample at a concentration of 476 mg/kg. This concentration exceeds the PAL of 300 mg/kg. The remaining metals were detected at concentrations greater than the MDL but less than the PAL, or were not detected at concentrations greater than the MDL. Figure 5-1 is a tag map which shows the lead exceedance detected during the SI.

Metals in soil were not analyzed for during the RI.

5.5 SUBSURFACE SOIL ANALYTICAL RESULTS

The TCEQ defines subsurface soils under TRRP as the unsaturated vadose zone between 15 feet bgs and initial groundwater. During the temporary monitoring well installation activities, soil samples were obtained between ground surface and initial water. Since initial groundwater was encountered less than 15 feet bgs, no subsurface soils were evaluated at the former Skeet Range.

5.6 GROUNDWATER ANALYTICAL RESULTS

Figure 3-2 shows the locations of the groundwater samples collected during the RI. Groundwater samples for chemical analysis were not collected during the SI. Table 5-5 presents the groundwater analytical results.

5.6.1 PAHs

PAHs were not detected at concentrations greater than the MDL, or when detected the concentrations were less than the PAL in groundwater samples collected at the former Skeet Range during the RI.

5.6.2 Total Dissolved Solids

Total dissolved solids were detected at concentrations ranging from 34000 mg/L to 55000 mg/L. There is no PAL for TDS.

5.7 GEOTECHNICAL RESULTS

Geotechnical parameters (total porosity, effective porosity, fraction organic carbon, total organic carbon, and pH) were analyzed for during the SI for possible use in developing Tier 2 or 3 PCLs or for remedial design. The results are presented in Table 5-6.

5.8 MEC ANALYTICAL RESULTS

One MEC item, a used flare cartridge, was found at the Skeet Range during the SI. One surface soil sample was collected at the location of the flare cartridge. The sample was analyzed for explosives, TAL Metals and perchlorate. Figure 3-2 shows the location of the MEC item. Table 5-7 presents the analytical results.

Explosives were not detected at concentrations greater than the MDL in the surface soil sample collected near the MEC item during the SI.

TAL metals were detected at concentrations greater than the MDL but less than the PAL, or were not detected at concentrations greater than the MDL.

Perchlorate was detected at a concentration greater than the MDL but less than the PAL.

TABLE 5-1

ANALYTICAL PROGRAM
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1

Analysis	Method [1]
SOIL	
Polyaromatic Hydrocarbons	SW-846 8270C SIM
GROUNDWATER	
Polyaromatic Hydrocarbons	SW-846 8270C SIM
TDS	160.1
IDW - SOIL	
TCLP Volatile Organics	SW-846 1311/5030 8260B
TCLP Semivolatile Organics	SW-846 1311/5030 8270C
TCLP Pesticides	SW-846 1311/3510 8081A
TCLP Volatile Herbicides	SW-846 1311/3510 8151A
TCLP Metals	SW-846 1311/5030 6010
Reactive Cyanide	SW-846 7.3.4
Reactive Sulfide	SW-846 7.3.4
pH	SW-846 9045C
IDW - WATER	
Volatile Organics	SW-846 1311/5030 8260B
Semivolatile Organics	SW-846 1311/5030 8270C
Pesticides	SW-846 1311/3510 8081A
Volatile Herbicides	SW-846 1311/3510 8151A
Metals	SW-846 1311/5030 6010
Reactive Cyanide	SW-846 7.3.4
Reactive Sulfide	SW-846 7.3.4
pH	SW-846 9040B

Notes:

(1) All methods from EPA SW-846 except as noted.
IDW=Investigative Derived Waste
TCLP=Toxicity Characteristic Leaching Procedure

TABLE 5-2

PROJECT ACTION LIMITS FOR SOIL
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1

PARAMETERS	TOTAL SOIL COMBINED [1]	GROUNDWATER PROTECTION CLASS 3 [1]	SOIL AIR INHALATION [1]	TEXAS-SPECIFIC BACKGROUND CONCENTRATION	PROJECT ACTION LIMIT
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)					
1-METHYLNAPHTHALENE	150	290	NA	NA	150
2-METHYLNAPHTHALENE	250	1700	NA	NA	250
ACENAPHTHENE	3000	24000	NA	NA	3000
ACENAPHTHYLENE	3800	41000	NA	NA	3800
ANTHRACENE	18000	690000	NA	NA	18000
BENZO(A)ANTHRACENE	5.7	1800	3700	NA	5.7
BENZO(A)PYRENE	0.56	760	850	NA	0.56
BENZO(B)FLUORANTHENE	5.7	6000	6100	NA	5.7
BENZO(G,H,I)PERYLENE	1800	1000000	NA	NA	1800
BENZO(K)FLUORANTHENE	57	62000	150000	NA	57
CHRYSENE	560	150000	590000	NA	560
DIBENZO(A,H)ANTHRACENE	0.55	1500	2000	NA	0.55
FLUORANTHENE	2300	190000	NA	NA	2300
FLUORENE	2300	30000	NA	NA	2300
INDENO(1,2,3-CD)PYRENE	5.7	17000	25000	NA	5.7
NAPHTHALENE	220	3100	270	NA	220
PHENANTHRENE	1700	42000	NA	NA	1700
PYRENE	1700	110000	NA	NA	1700
INORGANICS (mg/kg)					
ANTIMONY	15	540	NA	1	15
ARSENIC	24	500	NA	5.9	24
COPPER	550	100000	NA	15	550
LEAD	500	300	NA	15	300
ZINC	9900	240000	NA	30	9900

Notes:
1. TRRP Tier 1 Residential PCL, May 24, 2011
mg/kg - milligrams per kilogram
NA - criteria not available

TABLE 5-3

PROJECT ACTION LIMITS FOR GROUNDWATER
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1

PARAMETERS	GROUNDWATER INGESTION CLASS 1/2 [1]	GROUNDWATER INGESTION CLASS 3 [1]	PROJECT ACTION LIMIT
POLYCYCLIC AROMATIC HYDROCARBONS (mg/L)			
1-METHYLNAPHTHALENE	0.031	3.1	3.1
2-METHYLNAPHTHALENE	0.098	9.8	9.8
ACENAPHTHENE	1.5	150	150
ACENAPHTHYLENE	1.5	150	150
ANTHRACENE	7.3	730	730
BENZO(A)ANTHRACENE	0.0013	0.13	0.13
BENZO(A)PYRENE	0.0002	0.02	0.02
BENZO(B)FLUORANTHENE	0.0013	0.13	0.13
BENZO(G,H,I)PERYLENE	0.73	73	73
BENZO(K)FLUORANTHENE	0.013	1.3	1.3
CHRYSENE	0.13	13	13
DIBENZO(A,H)ANTHRACENE	0.0002	0.02	0.02
FLUORANTHENE	0.98	98	98
FLUORENE	0.98	98	98
INDENO(1,2,3-CD)PYRENE	0.0013	0.13	0.13
NAPHTHALENE	0.49	49	49
PHENANTHRENE	0.73	73	73
PYRENE	0.73	73	73
INORGANICS (mg/L)			
ANTIMONY	0.006	0.6	0.6
ARSENIC	0.01	1	1
COPPER	1.3	130	130
LEAD	0.015	1.5	1.5
ZINC	7.3	730	730

Notes:
1. TRRP Tier 1 Residential PCL, May 24, 2011
mg/L - milligrams per liter
NA - criteria not available

TABLE 5-4

SOIL ANALYTICAL RESULTS
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

SAMPLE ID	PROJECT ACTION LIMIT[(1)]	SR-SS01	SR-SS02	SR-SS02-D	SR-SS03	SR-SS04	SR-SS05	SR-SS06	SR-SS07	SR-SS08	SR-SS09	SR-SS10
SAMPLE DATE		20080505	20080505	20080505	20080505	20080505	20080505	20080505	20080506	20080505	20080506	20080506
SAMPLE CODE		NORMAL	ORIG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX		SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)												
1-METHYLNAPHTHALENE	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	3000	0.24 H	0.0138 U	0.0137 U	0.186 J	0.54	7.29	0.0141 U	0.0415 U	0.7 J	0.587	0.0141 U
ACENAPHTHYLENE	3800	0.0416 U	0.0124 U	0.0123 U	0.399 U	0.16	3.99 U	0.0127 U	0.0415 U	0.0406 UJ	0.404 U	0.0126 U
ANTHRACENE	18000	0.475 H	0.00825 UL	0.00822 UL	0.182 J	1.07 L	18.5	0.00982 L	0.0415 U	1.34 J	1.15	0.00842 UL
BENZO(A)ANTHRACENE	5.7	5.35 H	0.0124 U	0.0123 U	7.45	7.86	158	0.0127 U	0.0468	29.6 J	9.95	0.0126 U
BENZO(A)PYRENE	0.56	6.92 H	0.0124 U	0.0123 U	12.6	9.83	187	0.0182 J	0.0653	47.3 J	11.3	0.0226 J
BENZO(B)FLUORANTHENE	5.7	12.5 H	0.0225 J	0.0128 J	20.5	20	323	0.037 J	0.117	62.4 J	20.1	0.0452
BENZO(G,H,I)PERYLENE	1800	3.81 J	0.0124 U	0.0123 U	8.93	2.78	113	0.0168 J	0.0479	25.8 J	6.24	0.0211 J
BENZO(K)FLUORANTHENE	57	0.0416 UR	0.0124 U	0.0123 U	0.399 U	0.0124 U	3.99 U	0.0127 U	0.0415 U	28 J	0.404 U	0.0126 U
CHRYSENE	560	6.04 H	0.0124 UL	0.0123 UL	8.78	8.67 L	171	0.0171 L	0.048	35.1 L	10.1	0.0205 L
DIBENZO(A,H)ANTHRACENE	0.55	0.0416 U	0.0124 U	0.0123 U	0.399 U	0.0124 U	3.99 U	0.0127 U	0.0415 U	0.0406 UJ	0.404 U	0.0126 U
FLUORANTHENE	2300	8.68 J	0.0149 J	0.0123 U	6	10.4	273	0.0286 J	0.0521	31.3 J	17.3	0.0349 J
FLUORENE	2300	0.0819 H	0.0124 U	0.0123 U	0.399 U	0.194	2.51 J	0.0127 U	0.0415 U	0.281 J	0.233 J	0.0126 U
INDENO(1,2,3-CD)PYRENE	5.7	3.54 H	0.0124 U	0.0123 U	7.76	4.97	98.2	0.0146 J	0.0316 J	22.3 J	5.54	0.0176 J
NAPHTHALENE	220	0.236 H	0.0124 U	0.0123 U	0.399 U	0.477	5.98	0.0127 U	0.0415 U	0.615 J	0.582	0.0126 U
PHENANTHRENE	1700	2.4 H	0.0124 U	0.0123 U	0.76	4.44	85.7	0.0127 U	0.0125 J	8.4 J	5.4	0.0126 U
PYRENE	1700	7.59 J	0.0129 U	0.0129 U	6.86	12.5	239	0.0259 J	0.0471	29.6 J	14	0.0259 J
METALS (mg/kg)												
ANTIMONY	15	0.475 UR	0.475 UR	0.2 L	0.46 UR	0.483 UR	0.478 UR	0.491 UR	0.475 UR	0.32 L	0.484 UR	0.504 UR
ARSENIC	24	3.5	5.6	4.2	3.8	4.1	4.4	7.3	6.7	7.9	4.2	5.7
COPPER	550	11.6 J	11.7 J	10.2 J	11.2 J	11 J	12.1 J	12.3 J	12.5 L	10.8 J	9.4 L	14.2 L
LEAD	300	53.9 J	36.2 J	54.9 J	68.7 J	40.3 J	38.6 J	21.1 J	44.5	476 J	64.1	17.5
ZINC	9900	64.4	90.6	68.6	62.5	68.5	87.2	82.2	69.4	86.6	98.4	107

Notes:
1. Project Action Limits from Table 5-2
Highlight - indicates exceedance of PAL
mg/kg - milligrams per kilogram
NA - criteria not available or parameter not analyzed for
U - not detected
UR - not detected, rejected data
J - estimated
L - biased low

TABLE 5-4

SOIL ANALYTICAL RESULTS
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

SAMPLE ID		SR-SS11	SR-SS12	SR-SS12-D	SR-SS13	SR-SS14	SR-SS150001	SR-SS160001	SR-SS16A0001	SR-SS16B0001	SR-SS16C0001	SR-SS170001
SAMPLE DATE		20080506	20080506	20080506	20080506	20080506	20110126	20110125	20110125	20110125	20110125	20110125
SAMPLE CODE		NORMAL	ORIG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX	PROJECT ACTION LIMIT(1)	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		0.5	0.5	0.5	0.5	0.5	1	1	1	1	1	1
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)												
1-METHYLNAPHTHALENE	150	NA	NA	NA	NA	NA	0.002 UJ	0.007 J	0.002 UJ	0.009 U	0.002 UJ	0.2 UJ
2-METHYLNAPHTHALENE	250	NA	NA	NA	NA	NA	0.003 U	0.009 U	0.003 UJ	0.02 J	0.003 UJ	0.3 U
ACENAPHTHENE	3000	0.0942 J	0.294 J	0.0212 J	0.0411 U	0.0136 U	0.002 U	0.1	0.005 J	0.2	0.002 U	0.3 J
ACENAPHTHYLENE	3800	0.161 U	0.012 U	0.0121 U	0.0411 U	0.0122 U	0.002 U	0.005 U	0.002 U	0.007 U	0.002 U	0.1 U
ANTHRACENE	18000	0.203	0.534 L	0.0441 L	0.0127 J	0.00815 UL	0.002 UJ	0.3 J	0.01 J	0.3	0.004 J	0.5 J
BENZO(A)ANTHRACENE	5.7	2.87	7.45 J	0.524 J	0.178	0.0122 U	0.04	3	0.2	5	0.03	11
BENZO(A)PYRENE	0.56	4.4	9.61 J	0.615 J	0.3	0.0214 J	0.06	4	0.3	6 J	0.04	12
BENZO(B)FLUORANTHENE	5.7	8.25	16.7 J	1.09 J	0.541	0.0438	0.09	6	0.4	7	0.05	19
BENZO(G,H,I)PERYLENE	1800	2.37	4.28 J	0.38 J	0.181	0.0217 J	0.03	2	0.2	3	0.02 J	5
BENZO(K)FLUORANTHENE	57	0.161 U	0.012 U	0.0121 U	0.0411 U	0.0122 U	0.02 J	2 J	0.2	3 J	0.01 J	6 J
CHRYSENE	560	3.31	8 L	0.536 L	0.232	0.0198 L	0.04 J	4 J	0.2	6	0.03	12 J
DIBENZO(A,H)ANTHRACENE	0.55	0.161 U	0.012 U	0.0288 J	0.0411 U	0.0122 U	0.002 UJ	0.5 J	0.04	0.6	0.004 J	1 J
FLUORANTHENE	2300	3.58	9.21 J	0.667 J	0.21	0.0375 J	0.04	5	0.2	8	0.04	19
FLUORENE	2300	0.161 U	0.111	0.0121 U	0.0411 U	0.0122 U	0.004 U	0.04 J	0.004 U	0.06 J	0.004 U	0.4 U
INDENO(1,2,3-CD)PYRENE	5.7	2.19	4.38 J	0.353 J	0.152	0.0186 J	0.01 J	3	0.3	1	0.04	9
NAPHTHALENE	220	0.0903 J	0.284 J	0.0251 J	0.0411 U	0.0122 U	0.004 U	0.1	0.006 J	0.2	0.003 U	0.3 U
PHENANTHRENE	1700	0.893	2.16 J	0.206 J	0.052	0.0122 U	0.008 J	1	0.04	2	0.01 J	4
PYRENE	1700	3.97	9.51 J	0.624 J	0.222	0.0281 J	0.03 J	3	0.2	7	0.04	13
METALS (mg/kg)												
ANTIMONY	15	0.472 UR	0.459 UR	0.48 UR	0.487 UR	0.489 UR	NA	NA	NA	NA	NA	NA
ARSENIC	24	4.9	4.2	3.8	5.4	4.9	NA	NA	NA	NA	NA	NA
COPPER	550	13 L	8.6 L	9.6 L	13.3 L	10.8 L	NA	NA	NA	NA	NA	NA
LEAD	300	97.5	19.9	18	25.4	12.8	NA	NA	NA	NA	NA	NA
ZINC	9900	87.8	60.3	64.7	93.9	70.5	NA	NA	NA	NA	NA	NA

Notes:
1. Project Action Limits from Table 5-2
Highlight - indicates exceedance of PAL
mg/kg - milligrams per kilogram
NA - criteria not available or parameter not analyzed for
U - not detected
UR - not detected, rejected data
J - estimated
L - biased low

TABLE 5-4

SOIL ANALYTICAL RESULTS
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

SAMPLE ID	PROJECT ACTION LIMIT[1]	SR-SS17A0001	SR-SS17B0001	SR-SS180001	SR-SS190001_20110125	SR-SS190001	SR-SS19A0001	SR-SS19B0001	SR-SS19C0001	SR-SS19D0001	SR-SS19E0001	SR-SS200001
SAMPLE DATE		20110125	20110125	20110125	20110125	20110125	20110125	20110125	20110125	20110125	20110125	20110125
SAMPLE CODE		NORMAL	NORMAL	NORMAL	ORIG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX		SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		1	1	1	1	1	1	1	1	1	1	1
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)												
1-METHYLNAPHTHALENE	150	0.02 U	0.002 UJ	0.002 UJ	0.002 UJ	0.002 UJ	0.002 UJ	0.002 UJ	0.002 UJ	0.009 U	0.002 UJ	0.002 UJ
2-METHYLNAPHTHALENE	250	0.04 J	0.003 UJ	0.003 UJ	0.003 U	0.003 U	0.003 UJ	0.003 UJ	0.003 UJ	0.01 J	0.003 UJ	0.003 UJ
ACENAPHTHENE	3000	0.3	0.003 J	0.003 J	0.01 J	0.03	0.004 J	0.002 U	0.002 U	0.1 J	0.002 U	0.002 U
ACENAPHTHYLENE	3800	0.02 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.006 U	0.002 U	0.002 U
ANTHRACENE	18000	0.6	0.009 J	0.007 J	0.04 J	0.1 J	0.01 J	0.003 J	0.004 J	0.2	0.002 U	0.002 U
BENZO(A)ANTHRACENE	5.7	8	0.1	0.09	0.3 J	1 J	0.1	0.03 J	0.03	3	0.007 J	0.02 J
BENZO(A)PYRENE	0.56	10 J	0.2	0.1	0.4 J	1 J	0.1	0.03	0.04	4 J	0.004 U	0.02 J
BENZO(B)FLUORANTHENE	5.7	12	0.2	0.2	0.6 J	2 J	0.2	0.04	0.06	4	0.003 U	0.04
BENZO(G,H,I)PERYLENE	1800	5	0.09	0.07	0.2 J	0.6 J	0.08	0.02 J	0.03	2	0.003 U	0.01 J
BENZO(K)FLUORANTHENE	57	6 J	0.07	0.06	0.2 J	0.6 J	0.07	0.01 J	0.02 J	2 J	0.004 U	0.01 J
CHRYSENE	560	11	0.1	0.1	0.4 J	1 J	0.1	0.02 J	0.04	4	0.002 U	0.01 J
DIBENZO(A,H)ANTHRACENE	0.55	1	0.02 J	0.01 J	0.04 J	0.2 J	0.02 J	0.003 J	0.006 J	0.3	0.002 U	0.002 U
FLUORANTHENE	2300	12	0.2	0.1	0.6 J	2 J	0.2	0.03	0.04	4	0.002 U	0.03
FLUORENE	2300	0.09 J	0.004 U	0.004 U	0.004 U	0.01 J	0.004 U	0.004 U	0.004 U	0.03 J	0.004 U	0.004 U
INDENO(1,2,3-CD)PYRENE	5.7	9	0.1	0.1	0.3 J	1 J	0.1	0.03 J	0.05	3	0.002 U	0.02 J
NAPHTHALENE	220	0.3	0.004 U	0.004 U	0.008 J	0.04 J	0.004 U	0.003 U	0.004 U	0.08 J	0.004 U	0.004 U
PHENANTHRENE	1700	2 J	0.04	0.04	0.1 J	0.5 J	0.05	0.009 J	0.01 J	1	0.002 U	0.008 J
PYRENE	1700	17	0.1	0.1	0.3 J	1 J	0.1	0.02 J	0.04	4	0.003 U	0.02 J
METALS (mg/kg)												
ANTIMONY	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	550	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	9900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1. Project Action Limits from Table 5-2
Highlight - indicates exceedance of PAL
mg/kg - milligrams per kilogram
NA - criteria not available or parameter not analyzed for
U - not detected
UR - not detected, rejected data
J - estimated
L - biased low

TABLE 5-4

**SOIL ANALYTICAL RESULTS
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 4 OF 7**

SAMPLE ID		SR-SS210001	SR-SS0220001	SR-SS022A0001	SR-SS022B0001	SR-SS022C0001	SR-SS022D0001	SR-SS022E0001	SR-SS0230001	SR-SS023A0001	SR-SS023B0001	SR-SS023C0001
SAMPLE DATE		20110125	20110426	20110426	20110426	20110426	20110426	20110426	20110426	20110426	20110426	20110426
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX	PROJECT ACTION LIMIT(1)	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		1	1	1	1	1	1	1	1	1	1	1
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)												
1-METHYLNAPHTHALENE	150	0.002 UJ	0.013 J	0.011 J	0.0042 J	0.055	0.015 J	0.033	0.009 J	0.0019 U	0.002 U	0.0019 U
2-METHYLNAPHTHALENE	250	0.003 UJ	0.01 J	0.012 J	0.0061 J	0.072	0.02 J	0.04	0.0081 J	0.0024 U	0.0025 U	0.0024 U
ACENAPHTHENE	3000	0.002 U	0.077	0.047	0.028	0.32 J	0.11	0.15	0.069	0.0026 J	0.0017 U	0.0032 J
ACENAPHTHYLENE	3800	0.002 U	0.0014 U	0.0013 U	0.0014 U	0.0013 U	0.0014 U	0.0014 U	0.0014 U	0.0013 U	0.0014 U	0.0013 U
ANTHRACENE	18000	0.002 U	0.1	0.054	0.051	0.5 J	0.23	0.22	0.11	0.0064 J	0.0015 J	0.0056 J
BENZO(A)ANTHRACENE	5.7	0.009 J	2.9 J	2.3	0.99	8.2	2.6	6	1.5 J	0.061	0.023 J	0.11
BENZO(A)PYRENE	0.56	0.008 J	5.5 J	4	1.3	12	3.3	9.6	2.4 J	0.068	0.033	0.16
BENZO(B)FLUORANTHENE	5.7	0.02 J	7 J	5.8	2	17	4.7	13	2.9 J	0.1	0.048	0.24
BENZO(G,H,I)PERYLENE	1800	0.005 J	4.5 J	3.2	0.84	8.5	2.1	6.1	2 J	0.036	0.021 J	0.094
BENZO(K)FLUORANTHENE	57	0.004 U	2.6 J	1.6	0.54	5.7	1.6	4.5	1.2 J	0.034	0.019 J	0.076
CHRYSENE	560	0.002 U	3.6 J	2.7	1.1	9.7	2.9	6.6	1.8 J	0.065	0.028	0.13
DIBENZO(A,H)ANTHRACENE	0.55	0.002 U	0.89 J	0.87 J	0.2	2.5	0.6 J	1.9	0.27 J	0.011 J	0.0044 J	0.026
FLUORANTHENE	2300	0.01 J	2.3	1.8	1.3	10	4.1	5.2	1.7	0.097	0.032	0.13
FLUORENE	2300	0.004 U	0.027	0.016 J	0.0085 J	0.14	0.051	0.058	0.028	0.0036 U	0.0037 U	0.0035 U
INDENO(1,2,3-CD)PYRENE	5.7	0.009 J	5.5 J	4.5 J	1.2 J	12 J	3 J	8.8 J	2.5 J	0.056	0.032	0.14
NAPHTHALENE	220	0.003 U	0.084	0.05	0.022 J	0.31 J	0.072	0.18	0.097	0.0029 U	0.003 U	0.0028 U
PHENANTHRENE	1700	0.003 J	0.43 J	0.27	0.26	2.8	1.2	1.1 J	0.55 J	0.033	0.0084 J	0.034
PYRENE	1700	0.008 J	3.3 J	1.8	1.1	9.4	3.2	4.7	2.2 J	0.076	0.029	0.12
METALS (mg/kg)												
ANTIMONY	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	550	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	9900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1. Project Action Limits from Table 5-2
Highlight - indicates exceedance of PAL
mg/kg - milligrams per kilogram
NA - criteria not available or parameter not analyzed for
U - not detected
UR - not detected, rejected data
J - estimated
L - biased low

TABLE 5-4

SOIL ANALYTICAL RESULTS
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

SAMPLE ID		SR-SS023D0001	SR-SS023E0001	SR-SS240001	SR-SS24A0001	SR-SS24B0001	SR-SS24C0001	SR-SS24D0001	SR-SS24E0001	SR-SS250001	SR-SS250001-D	SR-SS260001
SAMPLE DATE		20110426	20110426	20110620	20110620	20110620	20110620	20110620	20110620	20110620	20110620	20110620
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	NORMAL
MATRIX	PROJECT ACTION LIMIT(1)	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH		0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH		1	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)												
1-METHYLNAPHTHALENE	150	0.0055 J	0.0019 U	0.0059 J	0.0073 J	0.0018 U	0.0076 J	0.0019 U	0.0069 J	0.0018 U	0.0019 U	0.0019 U
2-METHYLNAPHTHALENE	250	0.0071 J	0.0025 U	0.0024 U	0.0087 J	0.0023 U	0.009 J	0.0024 U	0.0082 J	0.0024 U	0.0025 U	0.0025 U
ACENAPHTHENE	3000	0.029	0.01 J	0.033	0.035 J	0.0088 J	0.029 J	0.0017 UJ	0.028 J	0.0016 U	0.0017 U	0.0017 U
ACENAPHTHYLENE	3800	0.0014 U	0.0013 U	0.0013 U	0.0012 UJ	0.0013 UJ	0.0012 UJ	0.0013 UJ	0.0013 UJ	0.0013 U	0.0014 U	0.0014 U
ANTHRACENE	18000	0.055	0.022 J	0.064	0.048	0.017 J	0.039	0.0013 U	0.038	0.0013 U	0.0014 U	0.0039 J
BENZO(A)ANTHRACENE	5.7	1	0.34	1.2	1.3	0.26 J	1.1	0.015 J	1.1	0.016 J	0.046	0.082
BENZO(A)PYRENE	0.56	1.4	0.46	2	2.2	0.38	2.1	0.034	1.9	0.02 J	0.064	0.11
BENZO(B)FLUORANTHENE	5.7	2	0.65	3.1	2.8	0.52	2.8	0.044	2.5	0.028 J	0.11 J	0.18
BENZO(G,H,I)PERYLENE	1800	0.9	0.24	1.1	1.6	0.18	1.7	0.019 J	1.4	0.0052 J	0.025	0.047
BENZO(K)FLUORANTHENE	57	0.67	0.22	0.82	1.1	0.18	0.96	0.017 J	0.93	0.0066 J	0.021 J	0.044
CHRYSENE	560	1.2	0.36	1.3	1.6	0.28	1.6	0.018 J	1.4	0.0079 J	0.027	0.052
DIBENZO(A,H)ANTHRACENE	0.55	0.23	0.071	0.21 J	0.45 J	0.064	0.45 J	0.0055 J	0.39 J	0.0019 U	0.0074 J	0.012 J
FLUORANTHENE	2300	1.4	0.45	1.1	1.1	0.32	0.89	0.018 J	1	0.01 J	0.031	0.07
FLUORENE	2300	0.01 J	0.004 J	0.014 J	0.014 J	0.0034 U	0.01 J	0.0035 U	0.0097 J	0.0034 U	0.0036 U	0.0036 U
INDENO(1,2,3-CD)PYRENE	5.7	1.3 J	0.42 J	1.9	2.2	0.36	2.4	0.029 J	2	0.0097 J	0.028	0.059
NAPHTHALENE	220	0.029	0.0081 J	0.034	0.039	0.01 J	0.038	0.0029 U	0.035	0.0028 U	0.0029 U	0.003 U
PHENANTHRENE	1700	0.34	0.13	0.26 J	0.23 J	0.085 J	0.2 J	0.0037 J	0.19 J	0.0029 J	0.0083 J	0.022 J
PYRENE	1700	1.2	0.45	1.1	1.1 J	0.27 J	1.1 J	0.014 J	0.92 J	0.0097 J	0.035	0.068
METALS (mg/kg)												
ANTIMONY	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	550	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	9900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1. Project Action Limits from Table 5-2
Highlight - indicates exceedance of PAL
mg/kg - milligrams per kilogram
NA - criteria not available or parameter not analyzed for
U - not detected
UR - not detected, rejected data
J - estimated
L - biased low

TABLE 5-4

**SOIL ANALYTICAL RESULTS
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS**

SAMPLE ID		SR-SS270001	SR-SS280001	SR-SS290001	SR-SS290001-D	SR-SS300001	SR-SS310001	SR-SS032001	SR-SS033001	SR-SS034001	SR-SB001-0203	SR-SB001-0507
SAMPLE DATE		20110621	20110919	20110919	20110919	20110919	20110919	20110923	20110923	20110923	20110921	20110921
SAMPLE CODE		NORMAL	NORMAL	ORIG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX	PROJECT ACTION	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE	LIMIT(1)	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX		SS	SS	SS	SS	SS	SS	SS	SS	SS	SB	SB
TOP DEPTH		0	0	0	0	0	0	0	0	0	2	5
BOTTOM DEPTH		0.5	1	1	1	1	1	1	1	1	3	7
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)												
1-METHYLNAPHTHALENE	150	0.0019 U	0.0086 J	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0018 U	0.002 U	NA	NA
2-METHYLNAPHTHALENE	250	0.0025 U	0.0094 J	0.0024 U	0.0024 U	0.0025 U	0.0025 U	0.0024 U	0.0023 U	0.0026 U	NA	NA
ACENAPHTHENE	3000	0.0055 J	0.041	0.0023 J	0.0087 J	0.0017 U	0.0017 U	0.0016 U	0.0016 U	0.0018 U	0.0085 J	0.0043 J
ACENAPHTHYLENE	3800	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0014 U	0.0014 U	0.0013 U	0.0012 U	0.0014 U	0.0014 U	0.0014 U
ANTHRACENE	18000	0.016 J	0.057	0.0066 J	0.0087 J	0.024	0.0026 J	0.0013 U	0.0012 U	0.0029 J	0.014 J	0.0085 J
BENZO(A)ANTHRACENE	5.7	0.21	1.2	0.095 J	0.42 J	0.11	0.018 J	0.008 J	0.02 J	0.011 J	0.28	0.099 J
BENZO(A)PYRENE	0.56	0.27	2.2	0.19 J	1 J	0.12	0.028 J	0.012 J	0.035	0.015 J	0.48	0.14 J
BENZO(B)FLUORANTHENE	5.7	0.31	2.1	0.2 J	0.9 J	0.12	0.026 J	0.013 J	0.039 J	0.0028 UJ	0.53	0.15 J
BENZO(G,H,I)PERYLENE	1800	0.12	1.1	0.12 J	0.7 J	0.067	0.015 J	0.0084 J	0.024	0.011 J	0.26	0.079 J
BENZO(K)FLUORANTHENE	57	0.1	2.4	0.18 J	0.89 J	0.14	0.023 J	0.011 J	0.032	0.0037 U	0.43	0.16
CHRYSENE	560	0.14	1.6	0.12 J	0.58 J	0.12	0.021 J	0.011 J	0.028	0.016 J	0.34	0.12 J
DIBENZO(A,H)ANTHRACENE	0.55	0.022 J	0.58	0.063 J	0.25 J	0.037	0.0068 J	0.0037 J	0.01 J	0.0049 J	0.099	0.032 J
FLUORANTHENE	2300	0.24	1.2	0.09 J	0.31 J	0.27	0.029 J	0.013 J	0.025	0.024 J	0.3	0.14 J
FLUORENE	2300	0.0036 U	0.016 J	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.0035 U	0.0033 U	0.0038 U	0.0039 U	0.0038 U
INDENO(1,2,3-CD)PYRENE	5.7	0.13	1.1	0.12 J	0.65 J	0.068	0.014 J	0.012 J	0.034	0.016 J	0.44	0.12 J
NAPHTHALENE	220	0.0031 J	0.054	0.0029 U	0.0083 J	0.0029 U	0.003 U	0.0028 U	0.0027 U	0.0031 U	0.0072 J	0.0035 J
PHENANTHRENE	1700	0.072	0.33	0.027 U	0.048 J	0.14	0.018 U	0.0046 J	0.0065 J	0.015 J	0.07	0.042 J
PYRENE	1700	0.23	1.5	0.1 J	0.38 J	0.24	0.03 J	0.017 J	0.032	0.033	0.33	0.13 J
METALS (mg/kg)												
ANTIMONY	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	550	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	9900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1. Project Action Limits from Table 5-2
Highlight - indicates exceedance of PAL
mg/kg - milligrams per kilogram
NA - criteria not available or parameter not analyzed for
U - not detected
UR - not detected, rejected data
J - estimated
L - biased low

TABLE 5-4

SOIL ANALYTICAL RESULTS
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 7 OF 7

SAMPLE ID	PROJECT ACTION LIMIT[1]	SR-SB001-1012	SR-SB002-0203	SR-SB002-0507	SR-SB002-1012	SR-SB003-0102	SR-SB003-0507	SR-SB003-0507-D	SR-SB003-1012
SAMPLE DATE		20110921	20110920	20110920	20110920	20110921	20110921	20110921	20110921
SAMPLE CODE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	DUP	NORMAL
MATRIX		SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE		NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX		SB	SB	SB	SB	SB	SB	SB	SB
TOP DEPTH		10	2	5	10	1	5	5	10
BOTTOM DEPTH		12	3	7	12	2	7	7	12
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)									
1-METHYLNAPHTHALENE	150	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	250	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	3000	0.0026 J	0.003 J	0.0059 J	0.0018 U	0.0056 J	0.0022 J	0.0034 J	0.0019 U
ACENAPHTHYLENE	3800	0.0013 U	0.0015 U	0.0015 U	0.0014 U	0.0014 U	0.0015 U	0.0014 U	0.0015 U
ANTHRACENE	18000	0.0049 J	0.0037 J	0.0061 J	0.0014 U	0.016 J	0.0057 J	0.012 J	0.0015 U
BENZO(A)ANTHRACENE	5.7	0.083	0.074	0.2	0.0067 J	0.16	0.061	0.083	0.0076 J
BENZO(A)PYRENE	0.56	0.12	0.12	0.37	0.0088 J	0.21	0.073	0.092	0.011 J
BENZO(B)FLUORANTHENE	5.7	0.16	0.15	0.44	0.011 J	0.22	0.082	0.094	0.013 J
BENZO(G,H,I)PERYLENE	1800	0.072	0.082	0.21	0.0063 J	0.12	0.054	0.064	0.01 J
BENZO(K)FLUORANTHENE	57	0.11	0.12	0.31	0.0054 J	0.24	0.09	0.1	0.006 J
CHRYSENE	560	0.099	0.091	0.25	0.0097 J	0.18	0.074	0.096	0.01 J
DIBENZO(A,H)ANTHRACENE	0.55	0.029	0.033	0.08	0.0035 J	0.048	0.022 J	0.025	0.004 J
FLUORANTHENE	2300	0.1	0.067	0.18	0.0045 J	0.25	0.11	0.16	0.011 J
FLUORENE	2300	0.0035 U	0.004 U	0.004 U	0.0039 U	0.0038 U	0.0041 U	0.0038 U	0.004 U
INDENO(1,2,3-CD)PYRENE	5.7	0.11	0.13	0.32	0.0084 J	0.19	0.081	0.096	0.014 J
NAPHTHALENE	220	0.0028 U	0.0035 J	0.0053 J	0.0031 U	0.0054 J	0.0033 U	0.0033 J	0.0033 U
PHENANTHRENE	1700	0.025	0.015 J	0.03	0.0022 U	0.087	0.026	0.047	0.0032 J
PYRENE	1700	0.1	0.081	0.23	0.0066 J	0.25	0.076	0.11	0.0089 J
METALS (mg/kg)									
ANTIMONY	15	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	24	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	550	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	300	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	9900	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1. Project Action Limits from Table 5-2
Highlight - indicates exceedance of PAL
mg/kg - milligrams per kilogram
NA - criteria not available or parameter not analyzed for
U - not detected
UR - not detected, rejected data
J - estimated
L - biased low

TABLE 5-5

GROUNDWATER ANALYTICAL RESULTS
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1

LOCATION	PROJECT ACTION LIMIT (1)	SR-MW01		SR-MW02	SR-MW03
SAMPLE ID		SR-MW01	SR-MW01-D	SR-MW02	SR-MW03
SAMPLE DATE		20110923	20110923	20110923	20110923
SAMPLE CODE		ORIG	DUP	NORMAL	NORMAL
MATRIX		GW	GW	GW	GW
SAMPLE TYPE		NORMAL	NORMAL	NORMAL	NORMAL
POLYCYCLIC AROMATIC HYDROCARBONS (MG/L)					
1-METHYLNAPHTHALENE	3.1	0.00006 U	0.00006 U	0.00006 U	0.00006 U
2-METHYLNAPHTHALENE	9.8	0.00007 UJ	0.00007 UJ	0.00007 UJ	0.00007 UJ
ACENAPHTHENE	150	0.00006 U	0.00006 U	0.00006 U	0.00006 U
ACENAPHTHYLENE	150	0.00005 U	0.00005 U	0.00005 U	0.00005 U
ANTHRACENE	730	0.00004 U	0.00004 U	0.00004 U	0.00004 U
BENZO(A)ANTHRACENE	0.13	0.00004 UJ	0.00004 UJ	0.00004 UJ	0.00004 UJ
BENZO(A)PYRENE	0.02	0.00006 UJ	0.00006 UJ	0.00006 UJ	0.00006 UJ
BENZO(B)FLUORANTHENE	0.13	0.00008 UJ	0.00008 UJ	0.00008 UJ	0.00008 UJ
BENZO(G,H,I)PERYLENE	73	0.00006 UJ	0.00006 UJ	0.00006 UJ	0.00006 UJ
BENZO(K)FLUORANTHENE	1.3	0.00004 UJ	0.00004 UJ	0.00004 UJ	0.00004 UJ
CHRYSENE	13	0.00004 J	0.00003 UJ	0.00003 UJ	0.00003 UJ
DIBENZO(A,H)ANTHRACENE	0.02	0.00006 UJ	0.00006 UJ	0.00006 UJ	0.00006 UJ
FLUORANTHENE	98	0.00007 U	0.00007 U	0.00006 U	0.00006 U
FLUORENE	98	0.00005 U	0.00005 U	0.00005 U	0.00005 U
INDENO(1,2,3-CD)PYRENE	0.13	0.00005 UJ	0.00005 UJ	0.00004 UJ	0.00004 UJ
NAPHTHALENE	49	0.00006 U	0.00006 U	0.00006 U	0.00006 U
PHENANTHRENE	73	0.00004 UJ	0.00004 UJ	0.00004 UJ	0.00004 UJ
PYRENE	73	0.00005 UJ	0.00005 UJ	0.00005 UJ	0.00005 UJ
MISCELLANEOUS PARAMETERS (MG/L)					
TOTAL DISSOLVED SOLIDS	NA	34000	NA	55000	38000

Notes:
1. Project Action Limits from Table 5-3
Highlight - indicates exceedance of PAL
mg/L - milligrams per liter
NA - criteria not available or parameter not analyzed for
U - not detected
UR - not detected, rejected data
J - estimated
L - biased low

TABLE 5-6

GEOTECHNICAL SOIL ANALYTICAL RESULTS
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1

SAMPLE ID	SR-SB01-0608	SR-SB02-1617
SAMPLE DATE	20080508	20080508
SAMPLE CODE	NORMAL	NORMAL
MATRIX	SO	SO
SAMPLE TYPE	NORMAL	NORMAL
SUBMATRIX	SB	SB
TOP DEPTH	6	16
BOTTOM DEPTH	8	17
GEOTECHNICAL		
EFFECTIVE POROSITY (%)	5.75	4.47
TOTAL POROSITY (%)	50.2	48.1
FRACTION ORGANIC CARBON (g/g)	0.00125	0.00125
TOTAL ORGANIC CARBON (mg/kg)	1250	1250
PH (S.U.)	7.8	8.11

Notes:
mg/kg - milligrams per kilogram
g/g - grams per gram

TABLE 5-7

SURFACE SOIL ANALYTICAL RESULTS - MEC ITEM
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1

LOCATION		**SR-SS17**
SAMPLE ID		**SR-SS17**
SAMPLE DATE		**20080507**
SAMPLE CODE		**NORMAL**
MATRIX	**PROJECT ACTION LIMIT (3)**	**SO**
SAMPLE TYPE		**NORMAL**
SUBMATRIX		**SS**
TOP DEPTH		**0**
BOTTOM DEPTH		**0.5**
EXPLOSIVES (MG/KG)		
1,3,5-TRINITROBENZENE	180	0.05 U
1,3-DINITROBENZENE	0.76	0.05 U
2,4,6-TRINITROTOLUENE	17	0.05 U
2,4-DINITROTOLUENE	0.53	0.05 U
2,6-DINITROTOLUENE	0.48	0.05 U
2-AMINO-4,6-DINITROTOLUENE	9.9	0.05 U
2-NITROTOLUENE	3.1	0.05 U
3-NITROTOLUENE	180	0.05 U
4-AMINO-2,6-DINITROTOLUENE	6.7	0.05 U
4-NITROTOLUENE	43	0.05 U
HMX	230	0.05 U
NITROBENZENE	35	0.05 U
RDX	3.7	0.05 U
TETRYL	110	0.05 U
METALS (MG/KG)		
ALUMINUM	65,000	10800
ANTIMONY	15	0.112 UR
ARSENIC	24	3.5
BARIUM	8100	130
BERYLLIUM	38	0.59
CADMIUM	52	0.17
CALCIUM	NA	28800
CHROMIUM	33000	8
COBALT	21	3.9 J
COPPER	550	7.7 J
IRON	NA	6180
LEAD	300	29.6
MAGNESIUM	NA	3220
MANGANESE	3700	248 J
MERCURY	0.78	0.027
NICKEL	840	6.5
POTASSIUM	NA	2900
SELENIUM	230	2.2
SILVER	48	0.21
SODIUM	NA	116
THALLIUM	6.3	0.562 U
TIN	35000	NA
VANADIUM	50	14 J
ZINC	9900	42.1
MISCELLANEOUS PARAMETERS (MG/KG)		
PERCHLORATE	14	0.0239

Notes:
1. Project Action Limits from Table 4-2
Bold - indicates exceedance of PAL
mg/kg - milligrams per kilogram
NA - criteria not available or parameter not analyzed for
U - not detected
UR - not detected, rejected data
J - estimated
L - biased low

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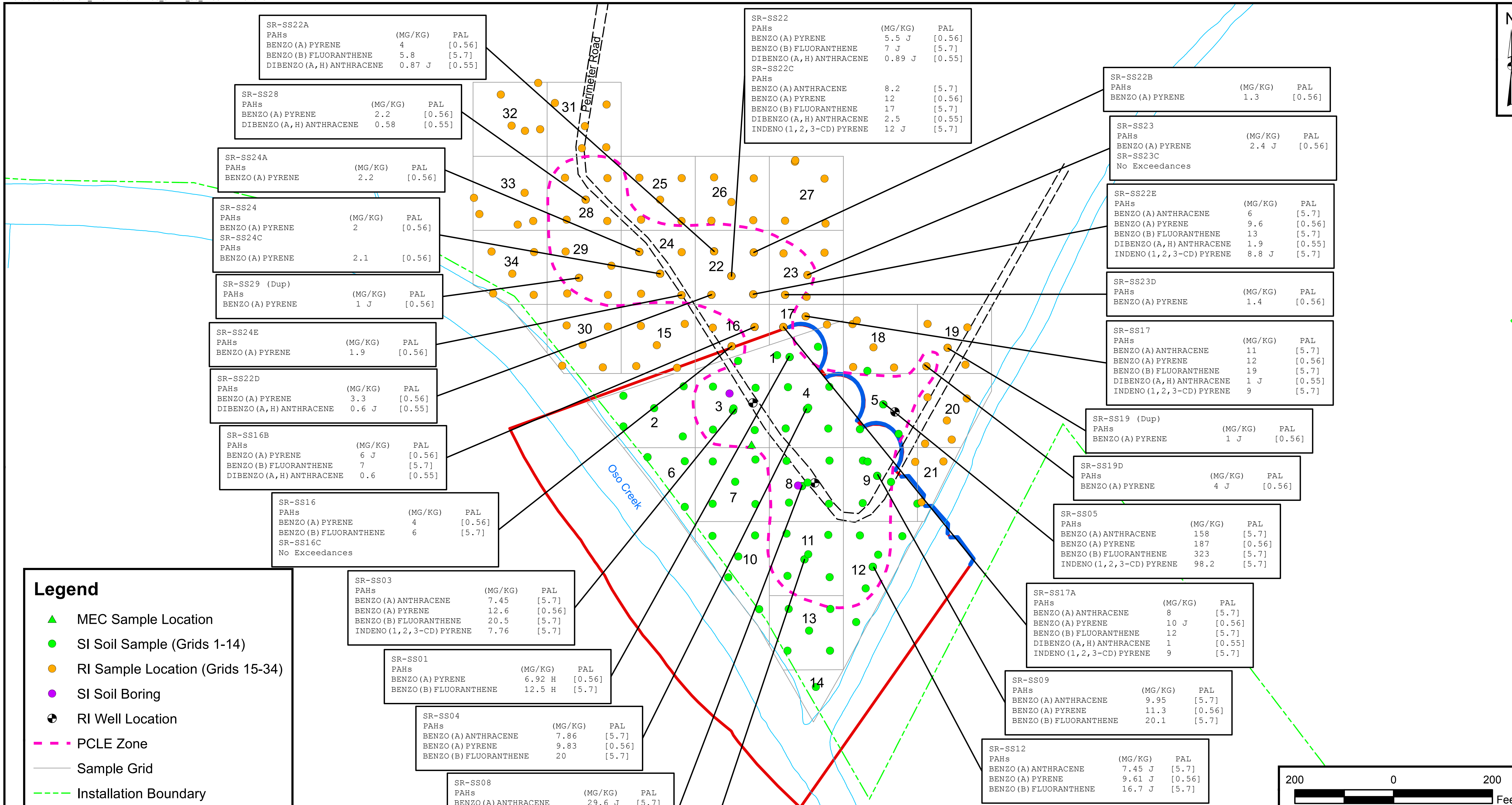


DRAWN BY	DATE
K. MOORE	1/16/12
CHECKED BY	DATE
F. GROSSKOPF	3/13/13
COST/SCHEDULE-AREA	
SCALE	
AS NOTED	

NAVFAC

SOIL SAMPLE EXCEEDANCES
SKEET RANGE SITE
NALF CABANISS
CORPUS CHRISTI, TEXAS

CONTRACT NUMBER	
CTO 0135	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO.	REV
5-1	1

6.0 CONTAMINANT FATE AND TRANSPORT

This section identifies the migration pathways of COCs to potential receptors. Tetra Tech contracted Banks Information Solutions, Inc. (Banks) to perform a database search of information published by state and federal regulatory agencies for the sites and surrounding properties. In addition, information related to physical characteristics (rainfall data, aquifer report, soil survey, floodplains, wetlands), and historical topographic maps were also obtained from Banks. Copies of the regulatory data, physical characteristics reports, and historical topographic maps are provided in Appendix H.

6.1 INCINERATOR DISPOSAL SITE

Figure 6-1 presents a general graphical depiction of the Conceptual Site Model (CSM) for the Incinerator Disposal Site.

6.1.1 Surface and Subsurface Soil Pathways

COCs in the surface soils (0 to 15 feet bgs) can impact potential human receptors via direct contact (dermal contact, ingestion, and inhalation) ($^{Tot}Soil_{Comb}$), and migration to the groundwater ($^{GW}Soil_{Class\ 3}$). Detected concentrations of four COCs in surface soil (antimony, cadmium, copper, lead) are greater than human health $^{Tot}Soil_{Comb}$ PCLs.

COCs in subsurface soil (greater than 15 feet bgs) can impact potential human receptors via volatilization (inhalation) ($Soil_{Inh\text{-}V}$), and migration to the groundwater ($^{GW}Soil_{Class\ 3}$). The TCEQ defines subsurface soils under TRRP as the unsaturated vadose zone between 15 feet bgs and initial groundwater. Since initial groundwater was encountered less than 15 feet bgs, no subsurface soils were evaluated at the Incinerator Disposal Site.

The Incinerator Disposal Site is located within the secured perimeter of NALF Cabaniss which restricts access to the area. Potential receptors include Navy personnel patrolling the area and Public Works personnel, contractors, trespassers, and visitors. NALF Cabaniss has limited personnel on-site, primarily air traffic control and emergency personnel. There are no military residences at NALF Cabaniss. Non-military residential neighborhoods are located approximately 0.5 miles east of the Incinerator Disposal Site. It is possible trespassers could enter the more remote locations of the installation including the Incinerator Disposal Site, as the installation fence is down near that location.

Contaminant migration through the soil into groundwater is considered unlikely because of the physical properties of the underlying soil at NALF Cabaniss. The soils at the site have been defined as Victoria series composed of clays, which characteristically have low permeability. The soils exhibit very slow internal drainage when wet, and crack to depths of several feet when dry. While cracking of the soils can potentially occur, resulting in deposition of MC at greater depths, the soils generally remain wet throughout the year as a result of the consistent annual rainfall. Additionally, the chemical and physical nature of the MC most likely to be present at the Incinerator Disposal Site (e.g., low solubilities and high adsorption potential) likely limits the migration. As a result of the low permeability, the underlying soil is expected to contribute more to surface runoff than to groundwater recharge.

Detected COC concentrations in surface soil are greater than human health PCLs. However, no evidence of migration to subsurface soils or groundwater has been detected as shown by analytical testing of deeper soil and groundwater at the site.

The close proximity of the Incinerator Disposal Site to an active runway and the lack of development in the area likely preclude the construction of new facilities and place restrictions on new and existing operations. Thus, development is unlikely in the future. Therefore, all current potential receptors are also considered potential future receptors.

6.1.2 Surface Water and Sediment Pathways

The surface water/sediment pathway consists of direct contact (dermal contact, ingestion, and inhalation). Analytical results for surface water and sediment samples collected during the SI are less than the applicable TRRP human health (${}^{Tot}Sed_{Comb}$, ${}^{Sed}Sed_{Ing}$, ${}^{Sed}Sed_{Derm}$, and ${}^{SW}RBEL$) or ecological criteria (Sed_{Eco} and ${}^{SW}RBEL_{Eco}$); therefore, the pathways of exposure for sediment and surface water in Oso Creek are considered incomplete.

COCs in surface soil were delineated and are confined to the area near Perimeter Road, which is located over 500 feet from the nearest surface water body, Oso Creek. The potential impact to the surface water or sediment of Oso Creek is insignificant.

6.1.3 Groundwater Pathways

Groundwater pathways consist of inhalation (${}^{Air}GW_{Inh\text{-}V}$) and ingestion by human receptors via surface water (${}^{SW}GW$) and groundwater (${}^{GW}GW_{Class\ 3}$). Detected COC concentrations in groundwater are all less than human health PCLs for the Incinerator Disposal Site.

A review of the potential groundwater receptors indicated that the areas within a 1-mile radius of the Incinerator Disposal Site consist of mixed agricultural, industrial, and residential areas. A water well search was conducted to identify registered water wells within a 0.5-mile radius of the site. One registered water well was identified in the water well survey. A water supply well (83-21-5) is located approximately 700 feet south (downgradient) of the site on the opposite bank of Oso Creek. The well was completed in 2000, has a total depth of 205 feet, and is screened from 175 to 205 feet bgs (Banks, 2011).

The water well report is included as Appendix B. As discussed in Section 2, this water well is not screened within the same interval as the first encountered groundwater at the site, and is not considered a potential receptor for releases from the Incinerator Disposal Site.

NALF Cabaniss has limited personnel on-site, primarily air traffic control and emergency personnel. NALF Cabaniss facilities are supplied with water from municipally operated treatment and distribution systems. Potential receptors would not be exposed to affected groundwater because of the low permeability clays present at the site and the low potential for use of the shallow groundwater. The groundwater at the site has a TDS of greater than 10,000 mg/L, and thus would qualify as a Class 3 groundwater resource as defined by the TCEQ. The elevated TDS would preclude use for drinking, agriculture, or irrigation. As such, the groundwater would not pose a risk of exposure by ingestion or absorption.

6.1.4 Groundwater to Surface Water Pathway

The groundwater to surface water exposure pathway PCL (^{SW}GW) was evaluated for aquatic receptors. Analytical results for groundwater collected during the RI are less than the applicable TRRP ecological criteria ($^{SW}RBEL_{Eco}$); therefore, the pathways of exposure for groundwater to surface water in Oso Creek are considered insignificant and/or incomplete. Table 6-1 presents the evaluation of the groundwater/surface water pathway.

6.2 SKEET RANGE

Figure 6-2 presents a general graphical depiction of the CSM for the Skeet Range.

6.2.1 Surface and Subsurface Soil Pathways

COCs in the surface soils (0 to 15 feet bgs) can impact potential human receptors via direct contact (dermal contact, ingestion, and inhalation) ($^{Tot}Soil_{Comb}$), and migration to the groundwater ($^{GW}Soil_{Class\ 3}$). Detected concentrations of COCs in surface soil [benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; dibenzo(a,h)anthracene; indeno(1,2,3-cd)pyrene; and lead] are greater than human health $^{Tot}Soil_{Comb}$ PCLs.

COCs in subsurface soil (greater than 15 feet bgs) can impact potential human receptors via volatilization (inhalation) ($Soil_{Inh\text{-}V}$), and migration to the groundwater ($^{GW}Soil_{Class\ 3}$). The TCEQ defines subsurface soils under TRRP as the unsaturated vadose zone between 15 feet bgs and initial groundwater. Since initial groundwater was encountered less than 15 feet bgs, no subsurface soils were evaluated at the former Skeet Range.

The Skeet Range is located within the secured perimeter of NALF Cabaniss which restricts access to the area. Potential receptors include Navy personnel patrolling the area and Public Works personnel, contractors, trespassers, and visitors. NALF Cabaniss has limited personnel on-site, primarily air traffic control and emergency personnel. There are no military residences at NALF Cabaniss. Non-military residential neighborhoods are located approximately 0.5 miles east of the former skeet range. It is possible trespassers could enter the more remote locations of the installation including the Skeet Range, as the installation fence is down near that location.

Contaminant migration through the soil into groundwater is considered unlikely because of the physical properties of the underlying soil at NALF Cabaniss. The soils at the site have been defined as Victoria series composed of clays, which characteristically have low permeability. The soils exhibit very slow internal drainage when wet, and crack to depths of several feet when dry. While cracking of the soils can potentially occur, resulting in deposition of MC at greater depths, the soils generally remain wet throughout the year as a result of consistent annual rainfall. Additionally, the chemical and physical nature of the MC most likely to be present at the former Skeet Range (e.g., low solubilities and high adsorption potential) likely limits the migration. As a result of the low permeability, the underlying soil is expected to contribute more to surface runoff than to groundwater recharge.

Detected COC concentrations in surface soil are greater than human health PCLs. However, no evidence of migration to subsurface soils or groundwater has been detected as shown by analytical testing of deeper soil and groundwater at the site.

The close proximity of the former range to an active runway and the lack of development in the area likely preclude the construction of new facilities, and place restrictions on new and existing operations. Thus, development is unlikely in the future. Therefore, all current potential receptors are also considered potential future receptors.

6.2.2 Surface Water and Sediment Pathways

The surface water/sediment pathway consists of direct contact (dermal contact, ingestion, and inhalation). Analytical results for surface water and sediment samples collected during the SI are less than the applicable TRRP human health (${}^{Tot}Sed_{Comb}$, ${}^{Sed}Sed_{Ing}$, ${}^{Sed}Sed_{Derm}$, and ${}^{SW}RBEL$) or ecological (Sed_{Eco} and ${}^{SW}RBEL_{Eco}$) criteria; therefore, the pathways of exposure for sediment and surface water in Oso Creek are considered incomplete.

COCs in surface soil were delineated and are confined to the area near Perimeter Road, which is located over 200 feet from the nearest surface water body, Oso Creek. The potential impact to the surface water or sediment of Oso Creek is insignificant.

6.2.3 Groundwater Pathways

Groundwater pathways consist of inhalation ($^{Air}GW_{Inh-V}$) and ingestion by human receptors via surface water (^{SW}GW) and groundwater ($^{GW}GW_{Class\ 3}$). Detected COC concentrations in groundwater are less than human health PCLs.

A review of the potential groundwater receptors indicated that the areas within a 1-mile radius of the former Skeet Range consist of mixed agricultural, industrial, and residential areas. A water well search was conducted to identify registered water wells within a 0.5-mile radius of the site. One registered water well was identified in the water well survey. A water supply well (83-21-5) is located approximately 700 feet south (downgradient) of the site on the opposite bank of Oso Creek. The well was completed in 2000, has a total depth of 205 feet, and is screened from 175 to 205 feet bgs (Banks, 2011). The water well report is included as Appendix B. As discussed in Section 2, this water well is not screened within the same interval as the first encountered groundwater at the site and is not considered a potential receptor for releases from the former Skeet Range.

NALF Cabaniss has limited personnel on-site, primarily air traffic control and emergency personnel. NALF Cabaniss facilities are supplied with water from municipally operated treatment and distribution systems. Potential receptors would not be exposed to affected groundwater because of the low permeability clays present at the site and the low potential for use of the shallow groundwater. The groundwater at the site has a TDS of greater than 10,000 mg/L, thus making it a Class 3 groundwater resource as defined by the TCEQ. The elevated TDS would preclude use for drinking, agriculture, or irrigation. As such, the groundwater would not pose a risk of exposure by ingestion or absorption.

6.2.4 Groundwater to Surface Water Pathway

The groundwater to surface water exposure pathway PCL (^{SW}GW) was evaluated for aquatic receptors. Analytical results for groundwater collected during the RI are less than the applicable TRRP ecological criteria ($^{SW}RBEL_{Eco}$); therefore, the pathways of exposure for groundwater to surface water in Oso Creek are considered insignificant and/or incomplete. Table 6-2 presents the evaluation of the groundwater/surface water pathway.

TABLE 6-1

GROUNDWATER TO SURFACE WATER ANALYTICAL RESULTS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1

SAMPLE ID SAMPLE DATE SAMPLE CODE	PROJECT ACTION LIMIT [1]		PROJECT ACTION LIMIT [1] PAL/0.15		ID-GW001MW 20110922 ORIG	ID-GW001MW-D 20110922 DUP	ID-GW002MW 20110922 NORMAL	ID-GW003MW 20110922 NORMAL
MATRIX SAMPLE TYPE	Saltwater Acute	Saltwater Chronic	Saltwater Acute	Saltwater Chronic	GW NORMAL	GW NORMAL	GW NORMAL	GW NORMAL
EXPLOSIVES (mg/L)								
1,3,5-TRINITROBENZENE	NA	NA	NA	NA	0.00004 U	0.00004 U	0.00004 U	0.00004 U
1,3-DINITROBENZENE	NA	NA	NA	NA	0.00004 U	0.00004 U	0.00004 U	0.00004 U
2,4,6-TRINITROTOLUENE	0.3	0.05	2	0.3333	0.00006 U	0.00006 U	0.00006 U	0.00006 U
2,4-DINITROTOLUENE	NA	NA	NA	NA	0.00005 U	0.00005 U	0.00005 U	0.00005 U
2,6-DINITROTOLUENE	NA	NA	NA	NA	0.00005 U	0.00005 U	0.00005 U	0.00005 U
2-AMINO-4,6-DINITROTOLUENE	NA	NA	NA	NA	0.00003 U	0.00003 U	0.00003 U	0.00003 U
2-NITROTOLUENE	NA	NA	NA	NA	0.00007 U	0.00007 U	0.00007 U	0.00007 U
3-NITROTOLUENE	NA	NA	NA	NA	0.00006 U	0.00006 U	0.00006 U	0.00006 U
4-AMINO-2,6-DINITROTOLUENE	NA	NA	NA	NA	0.00005 U	0.00005 U	0.00005 U	0.00005 U
4-NITROTOLUENE	NA	NA	NA	NA	0.00006 U	0.00006 U	0.00006 U	0.00006 U
HMX	NA	NA	NA	NA	0.00004 U	0.00004 U	0.00004 U	0.00004 U
NITROBENZENE	NA	0.0668	NA	0.4453	0.00007 U	0.00007 U	0.00007 U	0.00007 U
RDX	NA	NA	NA	NA	0.00004 U	0.00004 U	0.00004 U	0.00004 U
TETRYL	NA	NA	NA	NA	0.00006 U	0.00006 U	0.00006 U	0.00006 U
INORGANICS (mg/L)								
ALUMINUM	NA	NA	NA	NA	0.37 U	0.592 J	0.37 U	0.503 J
ANTIMONY	NA	NA	NA	NA	0.032 UJ	0.0428 J	0.032 UJ	0.032 UJ
ARSENIC	0.149	0.078	0.9933	0.5200	0.03575 U	0.03575 U	0.0391 U	0.03575 U
BARIUM	NA	25	NA	166.7	0.0502 J	0.0422 J	0.0774 J	0.062 J
BERYLLIUM	NA	NA	NA	NA	0.0041 J	0.0025 U	0.0025 U	0.0028 U
CADMIUM	0.04	0.00875	0.2667	0.0583	0.0014 J	0.00125 U	0.00125 U	0.00125 U
CALCIUM	NA	NA	NA	NA	233	230	404	1100
CHROMIUM	1.09	0.0496	7.2667	0.3307	0.009 U	0.009 U	0.009 U	0.009 U
COBALT	NA	NA	NA	NA	0.006 U	0.006 U	0.006 U	0.017 J
COPPER	0.0135	0.0036	0.0900	0.0240	0.01575 U	0.01575 U	0.0178 J	0.01575 U
IRON	NA	NA	NA	NA	0.1355 U	0.1355 U	0.142 J	0.233 J
LEAD	0.133	0.0053	0.8867	0.0353	0.02675 U	0.02675 U	0.029 J	0.02675 U
MAGNESIUM	NA	NA	NA	NA	114	110	162	544
MANGANESE	NA	NA	NA	NA	0.141	0.157	1.14	3.68
MERCURY	0.0021	0.0011	0.0140	0.0073	0.00001 UJ	0.0001 UJ	0.00001 UJ	0.00001 UJ
NICKEL	0.118	0.0131	0.7867	0.0873	0.007 U	0.007 U	0.0107 J	0.018 J
POTASSIUM	NA	NA	NA	NA	6.95 J	31.8 J	37 J	97.7 J
SELENIUM	0.564	0.136	3.7600	0.9067	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ
SILVER	0.002	0.0002	0.0133	0.0013	0.00675 U	0.00675 U	0.00675 U	0.00675 U
SODIUM	NA	NA	NA	NA	1800	1800	3220	5390
THALLIUM	NA	NA	NA	NA	0.02675 U	0.02675 U	0.0268 U	0.02675 U
TIN	NA	NA	NA	NA	0.0275 U	0.00275 U	0.0275 U	0.0275 U
VANADIUM	NA	NA	NA	NA	0.0281 J	0.0359 J	0.0188 J	0.00575 U
ZINC	0.0927	0.0842	0.6180	0.5613	0.0194 U	0.018 U	0.0258 U	0.0209 U
MISCELLANEOUS PARAMETERS (mg/L)								
PERCHLORATE	NA	NA	NA	NA	0.000082 U	0.000082 U	0.000082 U	0.000082 U
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	5700	NA	11000	16000

Notes:
1. TRRP Aquatic Life Surface Water RBEL, January 19, 2011
2. Dilution Factor - Aquatic Life Surface Water RBEL / 0.15
Highlight - indicates exceedance of PAL
mg/L - milligrams per liter
NA - criteria not available or parameter not analyzed for
U - not detected
UR - not detected, rejected data
J - estimated
L - biased low

TABLE 6-2

GROUNDWATER TO SURFACE WATER ANALYTICAL RESULTS
SKEET RANGE SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

LOCATION SAMPLE ID SAMPLE DATE SAMPLE CODE MATRIX SAMPLE TYPE	PROJECT ACTION LIMIT (1) Saltwater Acute	PROJECT ACTION LIMIT (1) Saltwater Chronic	PROJECT ACTION LIMIT (2) (PAL/0.15) Saltwater Acute	PROJECT ACTION LIMIT (2) (PAL/0.15) Saltwater Chronic	SR-MW01 SR-MW01 20110923 ORIG GW NORMAL	SR-MW01 SR-MW01-D 20110923 DUP GW NORMAL	SR-MW02 SR-MW02 20110923 NORMAL GW NORMAL	SR-MW03 SR-MW03 20110923 NORMAL GW NORMAL
POLYCYCLIC AROMATIC HYDROCARBONS (MG/L)								
1-METHYLNAPHTHALENE	NA	NA	NA	NA	0.00006 U	0.00006 U	0.00006 U	0.00006 U
2-METHYLNAPHTHALENE	0.18	0.03	1.2	0.2	0.00007 UJ	0.00007 UJ	0.00007 UJ	0.00007 UJ
ACENAPHTHENE	NA	0.0404	NA	0.2693	0.00006 U	0.00006 U	0.00006 U	0.00006 U
ACENAPHTHYLENE	NA	NA	NA	NA	0.00005 U	0.00005 U	0.00005 U	0.00005 U
ANTHRACENE	0.00108	0.00018	0.0072	0.0012	0.00004 U	0.00004 U	0.00004 U	0.00004 U
BENZO(A)ANTHRACENE	NA	NA	NA	NA	0.00004 UJ	0.00004 UJ	0.00004 UJ	0.00004 UJ
BENZO(A)PYRENE	NA	NA	NA	NA	0.00006 UJ	0.00006 UJ	0.00006 UJ	0.00006 UJ
BENZO(B)FLUORANTHENE	NA	NA	NA	NA	0.00008 UJ	0.00008 UJ	0.00008 UJ	0.00008 UJ
BENZO(G,H,I)PERYLENE	NA	NA	NA	NA	0.00006 UJ	0.00006 UJ	0.00006 UJ	0.00006 UJ
BENZO(K)FLUORANTHENE	NA	NA	NA	NA	0.00004 UJ	0.00004 UJ	0.00004 UJ	0.00004 UJ
CHRYSENE	NA	NA	NA	NA	0.00004 J	0.00003 UJ	0.00003 UJ	0.00003 UJ
DIBENZO(A,H)ANTHRACENE	NA	NA	NA	NA	0.00006 UJ	0.00006 UJ	0.00006 UJ	0.00006 UJ
FLUORANTHENE	NA	0.00296	NA	0.00296	0.00007 U	0.00007 U	0.00006 U	0.00006 U
FLUORENE	0.3	0.05	2	0.3333	0.00005 U	0.00005 U	0.00005 U	0.00005 U
INDENO(1,2,3-CD)PYRENE	NA	NA	NA	NA	0.00005 UJ	0.00005 UJ	0.00004 UJ	0.00004 UJ
NAPHTHALENE	0.75	0.125	5	0.8333	0.00006 U	0.00006 U	0.00006 U	0.00006 U
PHENANTHRENE	0.0077	0.0046	0.0513	0.0307	0.00004 UJ	0.00004 UJ	0.00004 UJ	0.00004 UJ
PYRENE	0.0074	0.00024	0.0493	0.0016	0.00005 UJ	0.00005 UJ	0.00005 UJ	0.00005 UJ
MISCELLANEOUS PARAMETERS (MG/L)								
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	34000	NA	55000	38000

Notes:
1. TRRP Aquatic Life Surface Water RBEL, January 19, 2011
2. Dilution Factor - Aquatic Life Surface Water RBEL / 0.15
Highlight - indicates exceedance of PAL
mg/L - milligrams per liter
NA - criteria not available or parameter not analyzed for
U - not detected
UR - not detected, rejected data
J - estimated
L - biased low

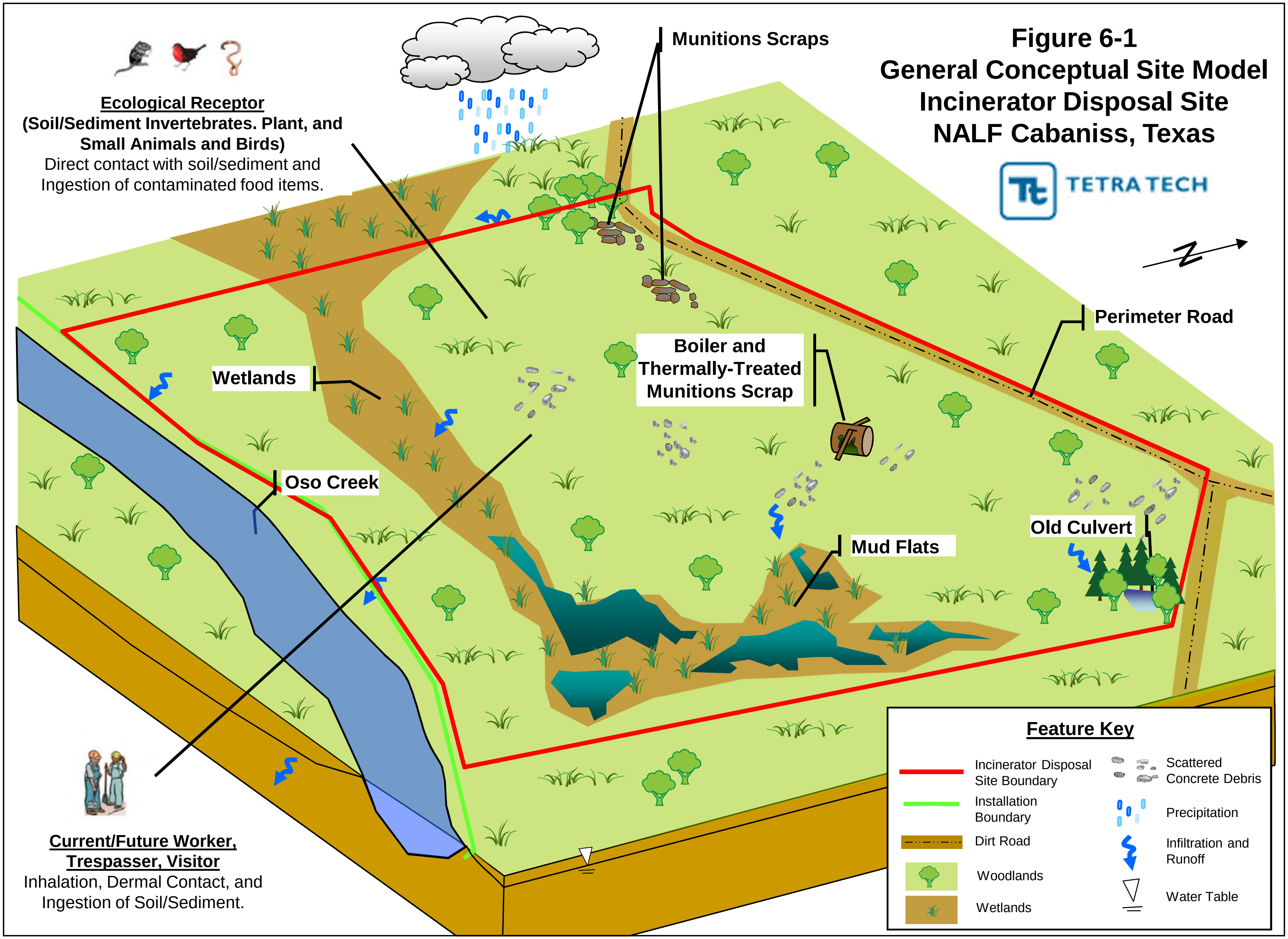


Figure 6-1
General Conceptual Site Model
Incinerator Disposal Site
NALF Cabaniss, Texas
TETRA TECH
Ecological Receptor
(Soil/Sediment Invertebrates. Plant, and Small Animals and Birds)
Direct contact with soil/sediment and Ingestion of contaminated food items.
Munitions Scraps
Wetlands
Oso Creek
Boiler and Thermally-Treated Munitions Scrap
Perimeter Road
Mud Flats
Old Culvert
Current/Future Worker, Trespasser, Visitor
Inhalation, Dermal Contact, and Ingestion of Soil/Sediment.
Feature Key
Incinerator Disposal Site Boundary
Installation Boundary
Dirt Road
Woodlands
Wetlands
Scattered Concrete Debris
Precipitation
Infiltration and Runoff
Water Table

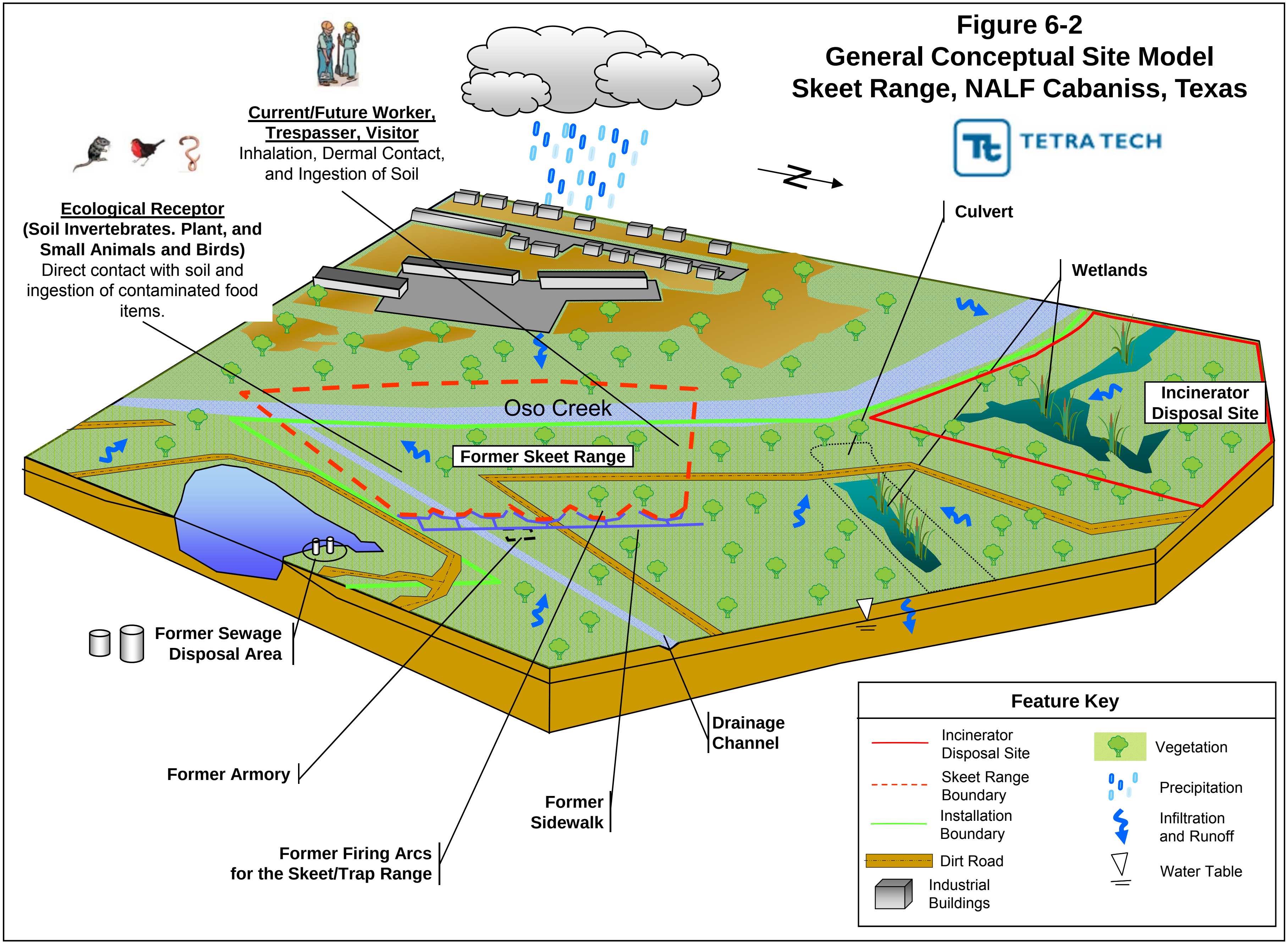


Figure 6-2
General Conceptual Site Model
Skeet Range, NALF Cabaniss, Texas
TETRA TECH
Current/Future Worker, Trespasser, Visitor
Inhalation, Dermal Contact, and Ingestion of Soil
Ecological Receptor
(Soil Invertebrates. Plant, and Small Animals and Birds)
Direct contact with soil and ingestion of contaminated food items.
N
Culvert
Wetlands
Oso Creek
Former Skeet Range
Incinerator Disposal Site
Former Sewage Disposal Area
Former Armory
Former Firing Arcs for the Skeet/Trap Range
Former Sidewalk
Drainage Channel
Feature Key
Incinerator Disposal Site
Skeet Range Boundary
Installation Boundary
Dirt Road
Industrial Buildings
Vegetation
Precipitation
Infiltration and Runoff
Water Table

7.0 BASELINE RISK ASSESSMENT

This investigation has been performed in compliance with the TRRP Rule (30 TAC 350). The TRRP rule specifies the assessment, monitoring, cleanup, reporting and other requirements for regulated sites in Texas.

The traditional baseline risk assessment process starts with a known concentration in a source area and assesses the carcinogenic risk to the receptor at the point of exposure within each media for each potentially complete exposure pathway. This risk calculation is repeated for each COC within the media to determine if there are any unacceptable exposure levels for individual COCs based on their carcinogenic effects. The results of the carcinogenic effects for all COCs within a given media are then added to determine if there is an unacceptable risk based on a cumulative carcinogenic effect. This process of calculating individual COC risk and cumulative COC risk is then repeated for the Hazard Indices of the COCs in each complete exposure pathway. Only after an unacceptable risk has been determined in the given media is a protective concentration calculated for the individual COCs based on the potentially complete exposure pathways.

In the evaluation of the soil and groundwater analytical data at the Incinerator Disposal Site and former Skeet Range, the results were compared to TRRP (30 TAC 350) Tier 1 PCLs to determine the limits of the affected property. A PCL is the TCEQ regulatory standard for a concentration of a COC in a source medium that will protect a receptor at the point of exposure to that COC. Tier 1 PCLs are back-calculated, as described in Tiered Development of Human Health PCLs (RG-366/TRRP-22) (TCEQ, 2010b). Tier 1 PCLs are established using equations and input parameters set in the rule resulting in non-unique or “generic” PCLs for each COC for each exposure pathway. For example, under the Tier 1 scenario, the natural attenuation factor equals one, and the assumption is that the source and receptor are located at the same point.

Under the TRRP rule, a Baseline Risk Assessment is not required [Comparison of 30 TAC 335 and 30 TSC 350: Points to Consider in Making the Shift (RG366/TRRP-4)] (TCEQ, 2008), since PCLs are back-calculated by determining what concentration of a contaminant could remain at the source and still yield protective concentrations at the point of exposure.

8.0 SCREENING-LEVEL ECOLOGICAL RISK ASSESSMENT

This section summarizes the results of the Screening-Level Ecological Risk Assessment (SERA) conducted for the Incinerator Disposal Site and former Skeet Range at NALF Cabaniss. A copy of the SERA is included in Appendix I.

8.1 PURPOSE OF SERA

The goal of the SERA was to determine whether any adverse ecological impacts are present as a result of exposure to chemicals released to the environment through historical activities at the Incinerator Disposal Site and former Skeet Range at NALF Cabaniss, in Corpus Christi, Texas.

The SERA was conducted in accordance with guidance presented in the following documents:

- Final Guidelines for Ecological Risk Assessment (USEPA, 1998).
- Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments (USEPA, 1997).
- Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas [Texas Natural Resource Conservation Commission (TNRCC), 2001].
- Update to Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas RG-263 (Revised) (TCEQ, 2006).
- Department of Navy (Navy) Environmental Policy Memorandum 97-04: Use of Ecological Risk Assessments (Navy, 1997).
- Navy Policy for Conducting Ecological Risk Assessments (Navy, 1999).

This SERA consists of Steps 1, 2, and 3a of the eight-step USEPA Ecological Risk Assessment (ERA) process discussed in USEPA guidance and the Navy Policy for Conducting ERAs, and Tier 1 and 2 of the TCEQ ERA guidance (TCEQ, 2006). The first two screening steps of the USEPA guidance correspond with Tier 1 of the Navy Policy, and Elements 1 through 6 of the TCEQ guidance comprise the SERA, where conservative exposure estimates are compared to screening-level and threshold toxicity values. Step 3a of the USEPA guidance is the first step of a baseline ecological risk assessment (BERA), and consists of refining the conservative assumptions to further focus the ERA on the chemicals and receptors of greatest concern at a site. Step 3a corresponds with the first part of Tier 2 of the Navy Policy. This step is similar to Element 7 in the TCEQ guidance, which consists of a less conservative analysis. The remaining steps of the ERA process would require the collection of additional data and the conduct of site-specific studies (i.e., toxicity testing, biological surveys). These remaining steps generally occur after Steps 1, 2, and 3a are completed and it is determined that those additional data are necessary to better evaluate ecological risks.

8.2 ENVIRONMENTAL SETTING

The Incinerator Disposal Site is approximately 17 acres in size. It is bounded to the south by Oso Creek, and Perimeter Road runs along the northern boundary of the site. The majority of the Incinerator Disposal Site is covered with dense vegetation. Open marshes are present on the eastern, southern and western sections.

The former Skeet Range is approximately 7 acres in size and located south and east along Perimeter Road, approximately 1000 feet east of the Incinerator Disposal Site. Perimeter Road divides the Skeet Range roughly in half. Oso Creek provides the southwest boundary and a narrow unnamed storm water diversion channel to Oso Creek provides the eastern boundary. Figure 1-1 shows the locations for the sites.

During the April 2011 ecological survey (Appendix C), it was observed that approximately 70 percent of the Incinerator Disposal and Skeet Range sites were heavily vegetated with a mix of upland woody shrubs and small trees typical of early to mid-successional woodlands in the southern plains. An open, emergent marsh occupied approximately 20 percent of the eastern and southern sections of the Incinerator Disposal Site. The remaining land consisted of a riparian woodland present along Oso Creek, and the stormwater diversion channel that flowed along the eastern edge of the Skeet Range.

Three primary types of vegetative cover were observed within the survey area. The majority of the site is vegetated with a deciduous scrub upland indigenous to Texas. The area adjacent to Oso Creek and the small unnamed tributary consisted of a narrow area of riparian woodlands while the remainder of the site consists of persistent emergent wetlands. The deciduous scrub habitat covers the majority of the study areas and creates a suitable cover area for a number of avian species and animal. Commonly observed species included white-eyed vireo, northern cardinal, catbird, white-winged dove and northern mockingbird. The plant species also provide food sources in the form of fruits and seeds that are eaten by avian and mammal species. For example, the bean of the mesquite provides the greater part of the coyote's summer food as well as food for other mammals including skunk, raccoon and cottontail rabbit.

No federally listed threatened or endangered plant or animal species were encountered. However, there are several state protected species that may be present at NALF Cabaniss. A discussion of the rare, threatened, and endangered flora and fauna known historically from Nueces County that have the potential to be found on NALF Cabaniss is presented in the Natural Resources Management Plan (Navy, 2006).

8.3 POTENTIAL EXPOSURE PATHWAYS

Terrestrial and aquatic receptors at the site can be exposed to chemicals in soil and sediment. Some areas at the Incinerator Disposal Site provide habitat to both terrestrial and aquatic receptors, depending on the amount of water present, while the former Skeet Range only provides habitat to terrestrial receptors. The majority of the Incinerator Disposal Site is dry throughout most of the year. However, during rainy periods, parts of the Incinerator Disposal Site are wet and become habitat for aquatic receptors. In those areas, risks were evaluated for both terrestrial and aquatic receptors. Aquatic receptors are limited primarily to benthic invertebrates and amphibians during periods when water is present. There are no aquatic habitats associated with the former Skeet Range; therefore, only risks to terrestrial receptors were evaluated at this site.

Surface soil for the purpose of this SERA is defined as soil from the ground surface to a depth of 1 foot bgs. At the former Skeet Range, approximately half of the surface soil samples were collected from 0 to 0.5 feet bgs, while half were collected from 0 to 1 foot bgs. At the former Incinerator Disposal Site, all of the surface soil samples were collected from 0 to 0.5 feet.

8.4 CONCEPTUAL SITE MODEL

The current CSM for the Incinerator Disposal Site and former Skeet Range are depicted on Figures 6-1 and 6-2, respectively.

In summary, at the Incinerator Disposal Site, contamination was released to the soil/sediment via several activities, including incineration of small ordnance items and confiscated drug material at the site. Plants, soil invertebrates, and vertebrates are exposed to chemicals in the surface soil by direct contact and/or ingestion of soil and food items. Benthic invertebrates and wetland birds are exposed to contaminated sediment by direct contact and/or ingestion of sediment and other food items.

At the former Skeet Range, contamination was released to the soil via various shooting and skeet-related activities. Plants, soil invertebrates, and vertebrates are exposed to chemicals in the surface soil by direct contact and/or ingestion of soil and food items.

8.5 ECOLOGICAL EFFECTS EVALUATION

The ecological effects assessment is an investigation of the relationship between the exposure to a chemical and the potential for adverse effects resulting from exposure. In this step, screening levels for toxicity of the chemicals to ecological receptors were compiled.

Potential risks to terrestrial plants and invertebrates, benthic invertebrates, mammals and birds resulting from exposure to chemicals in surface soil were evaluated by comparing chemical concentrations to ecological screening levels. Table 8-1 presents the screening levels, along with the source of each screening level.

8.6 SERA FOR THE INCINERATOR DISPOSAL SITE

This section presents a summary the results of the SERA for the Incinerator Disposal Site.

The SERA evaluated surface soil and sediment from the Incinerator Disposal Site. Based on the initial screening of the chemical data, several chemicals were initially selected as contaminants of potential concern (COPCs) in surface soil and sediment because they were detected at concentrations that exceeded conservative screening levels and background values, had Ecological Effects Quotients (EEQs) greater than 1.0 in the conservative food chain model, or did not have screening levels.

These chemicals were then further evaluated to refine the list of COPCs, and to better characterize risks to ecological receptors. The following presents the results of the SERA. Figure 8-1 presents a summary of the exceedances.

8.6.1 Terrestrial Plants and Soil Invertebrates

Antimony, cadmium, copper, lead, manganese, selenium, and zinc were retained as COPCs for potential risks to plants. Barium, copper, manganese, selenium, and zinc were retained as COPCs for potential risks to soil invertebrates.

8.6.2 Sediment Invertebrates

No chemicals were retained as COPCs for potential risks to sediment invertebrates.

8.6.3 Mammals and Birds

Cadmium was retained for potential risks to terrestrial invertivorous mammals.

8.7 SERA FOR THE SKEET RANGE

This section presents a summary of the results of the SERA for the Skeet Range

The SERA evaluated surface soil from the Skeet Range. Based on the initial screening of the chemical data, several chemicals were initially selected as COPCs in surface soil because they were detected at concentrations that exceeded conservative screening levels and background values, had EEQs greater than 1.0 in the conservative food chain model, or did not have screening levels.

These chemicals were then further evaluated to refine the list of COPCs, and to better characterize risks to ecological receptors. The following presents the results of the SERA.

8.7.1 Terrestrial Plants and Soil Invertebrates

No COPCs were retained for potential risks to plants and soil invertebrates.

8.7.2 Mammals and Birds

No COPCs were retained for potential risks to birds and mammals.

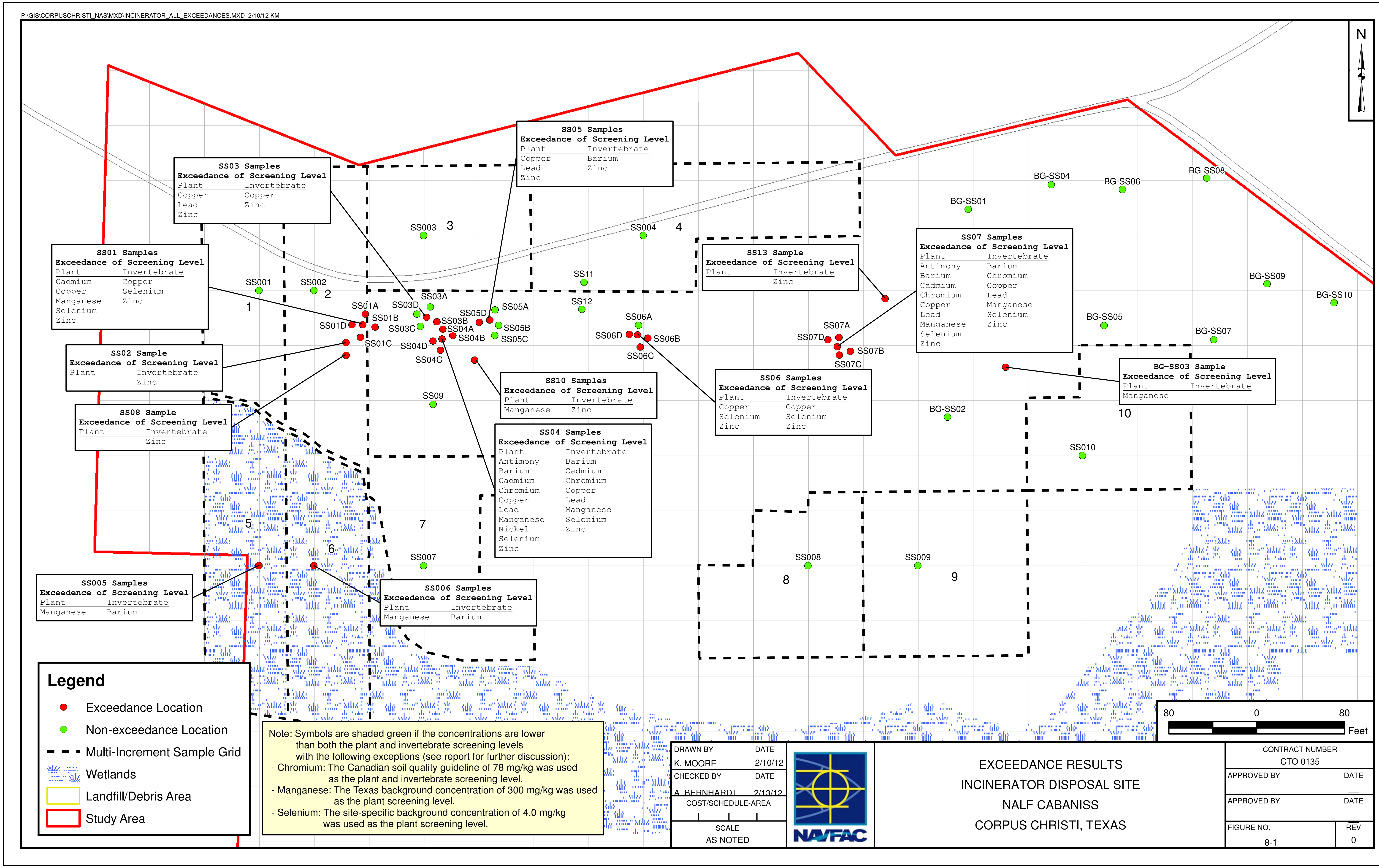
TABLE 8-1

REVISION 1
JULY 2013

ECOLOGICAL SCREENING VALUES
INCINERATOR DISPOSAL SITE AND SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

	SOIL				SEDIMENT	
	Plant Screening Level		Invertebrate Screening Level		Invertebrate Screening Level	
Chemical	Value	Source	Value	Source	Value	Source
Miscellaneous Parameters (mg/kg)						
Perchlorate	1[(1)]	Yoo et al., Undated	1.3[(2)]	Yoo et al., Undated	NA	
Polycyclic Aromatic Hydrocarbons (mg/kg)						
LMW PAHs	NA[(3)]		29	Eco SSL (USEPA, 2007d)[(4)]	NA[(5)]	
HMW PAHs	NA		18	Eco SSL (USEPA, 2007d)[(4)]	NA[(5)]	
Metals (mg/kg)						
Aluminum	NA[(6)]	Eco SSL (USEPA, 2003a)	NA[(6)]	Eco SSL (USEPA, 2003a)	NA	
Antimony	5	TCEQ, 2006	78	Eco SSL (USEPA, 2005a)	2	TCEQ, 2006
Arsenic	18	Eco SSL (USEPA, 2005b)	60	TCEQ, 2006	9.79	TCEQ, 2006
Barium	500	TCEQ, 2006	330	Eco SSL (USEPA, 2005c)	NA	
Beryllium	10	TCEQ, 2006	40	TCEQ, 2006	NA	
Cadmium	32	Eco SSL (USEPA, 2005d)	140	Eco SSL (USEPA, 2005d)	0.99	TCEQ, 2006
Chromium	1	TCEQ, 2006	0.4	TCEQ, 2006	43.4	TCEQ, 2006
Cobalt	13	Eco SSL (USEPA, 2005e)	NA		50	TCEQ, 2006
Copper	70	Eco SSL (USEPA, 2007a)	80	Eco SSL (USEPA, 2007a)	31.6	TCEQ, 2006
Iron	NA[(7)]	Eco SSL (USEPA, 2003b)	NA		20000	TCEQ, 2006
Lead	120	Eco SSL (USEPA, 2005f)	1,700	Eco SSL (USEPA, 2005f)	35.8	TCEQ, 2006
Magnesium	NA		NA		NA	
Manganese	220	Eco SSL (USEPA, 2007b)	450	Eco SSL (USEPA, 2007b)	460	TCEQ, 2006
Mercury	0.3	TCEQ, 2006	0.1	TCEQ, 2006	0.18	TCEQ, 2006
Nickel	38	Eco SSL (USEPA, 2007c)	280	Eco SSL (USEPA, 2007c)	22.7	TCEQ, 2006
Potassium	NA		NA		NA	
Selenium	0.52	Eco SSL (USEPA, 2007e)	4.1	Eco SSL (USEPA, 2007e)	NA	
Silver	560	Eco SSL (USEPA, 2006)	NA		1	TCEQ, 2006
Sodium	NA		NA		NA	
Thallium	1	TCEQ, 2006	NA		NA	
Vanadium	2	TCEQ, 2006	NA		NA	
Zinc	160	Eco SSL (USEPA, 2007f)	120	Eco SSL (USEPA, 2007f)	121	TCEQ, 2006

1 - Based on NOEC for germination of lettuce
2 - Based on an EC50 for cocoon production in sand (EC50 for cocoon production in artificial soil was 350 mg/kg)
3 - There is an ecological plant benchmark for acenaphthene of 20 mg/kg in TCEQ (2006).
4 - The USEPA Eco SSLs for PAHs for invertebrates are provided for LMW PAHs and HMW PAHs, but the levels are for individual PAHs within each class; the screening levels are not applied to "total" PAH vaues.
5 - Not applicable because PAHs were not analyzed for in the sediment samples.
6 - Aluminum is considered a COPC only when the soil pH is less than 5.5.
7 - Iron is not expected to be toxic to plants with a soil pH between 5 and 8.
NA - Not available/Not applicable
mg/kg - milligrams per kilogram
Eco SSL - Ecological soil screening level
PAHs - Polycyclic Aromatic Hydrocarbons
LMW - Low Molecular Weight (acenapthylene, anthracene, fluoranthene, fluorene, phenanthrene, 1-methylnaphthalene,\ 2-methylnaphthalene, naphthalene)
HMW - High Molecular Weight (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-c,d)pyrene, pyrene)


P:\GIS\CORPUSCHRISTI_NAS\MXD\INCINERATOR_ALL_EXCEEDANCES.MXD 2/10/12 KM
N
SS03 Samples
Exceedance of Screening Level
Plant Invertebrate
Copper Copper
Lead Zinc
Zinc
SS05 Samples
Exceedance of Screening Level
Plant Invertebrate
Copper Barium
Lead Zinc
Zinc
SS01 Samples
Exceedance of Screening Level
Plant Invertebrate
Cadmium Copper
Copper Selenium
Manganese Zinc
Selenium
Zinc
SS13 Sample
Exceedance of Screening Level
Plant Invertebrate
Zinc
SS07 Samples
Exceedance of Screening Level
Plant Invertebrate
Antimony Barium
Barium Chromium
Cadmium Copper
Chromium Lead
Copper Manganese
Lead Selenium
Manganese Zinc
Selenium
Zinc
SS02 Sample
Exceedance of Screening Level
Plant Invertebrate
Zinc
SS08 Sample
Exceedance of Screening Level
Plant Invertebrate
Zinc
SS10 Samples
Exceedance of Screening Level
Plant Invertebrate
Manganese Zinc
SS06 Samples
Exceedance of Screening Level
Plant Invertebrate
Copper Copper
Selenium Selenium
Zinc Zinc
BG-SS03 Sample
Exceedance of Screening Level
Plant Invertebrate
Manganese
SS04 Samples
Exceedance of Screening Level
Plant Invertebrate
Antimony Barium
Barium Cadmium
Cadmium Chromium
Chromium Copper
Copper Lead
Lead Manganese
Manganese Selenium
Nickel Zinc
Selenium
Zinc
SS005 Samples
Exceedence of Screening Level
Plant Invertebrate
Manganese Barium
SS006 Samples
Exceedence of Screening Level
Plant Invertebrate
Manganese Barium
SS001
SS002
SS003
SS004
SS007
SS008
SS009
SS010
SS01A
SS01B
SS01C
SS01D
SS03A
SS03B
SS03C
SS03D
SS04A
SS04B
SS04C
SS04D
SS05A
SS05B
SS05C
SS05D
SS06A
SS06B
SS06C
SS06D
SS07A
SS07B
SS07C
SS07D
SS09
SS11
SS12
BG-SS01
BG-SS02
BG-SS04
BG-SS05
BG-SS06
BG-SS07
BG-SS08
BG-SS09
BG-SS10
1
2
3
4
5
6
7
8
9
10
Legend
Exceedance Location
Non-exceedance Location
Multi-Increment Sample Grid
Wetlands
Landfill/Debris Area
Study Area
Note: Symbols are shaded green if the concentrations are lower than both the plant and invertebrate screening levels with the following exceptions (see report for further discussion):
- Chromium: The Canadian soil quality guideline of 78 mg/kg was used as the plant and invertebrate screening level.
- Manganese: The Texas background concentration of 300 mg/kg was used as the plant screening level.
- Selenium: The site-specific background concentration of 4.0 mg/kg was used as the plant screening level.
80 0 80
Feet
DRAWN BY DATE
K. MOORE 2/10/12
CHECKED BY DATE
A. BERNHARDT 2/13/12
COST/SCHEDULE-AREA
SCALE
AS NOTED
NAVFAC
EXCEEDANCE RESULTS
INCINERATOR DISPOSAL SITE
NALF CABANISS
CORPUS CHRISTI, TEXAS
CONTRACT NUMBER
CTO 0135
APPROVED BY DATE
APPROVED BY DATE
FIGURE NO. 8-1
REV 0

9.0 MEC GEOPHYSICAL INVESTIGATION

A MEC RI was conducted at the Incinerator Disposal Site. The primary objective of the MEC RI was to determine the presence, nature and extent of surface and subsurface MEC and MPPEH at the Incinerator Disposal Site, and to gather and compile data to support recommendations for site closure or corrective action. A secondary objective was to delineate the extent of the known landfill at the site. Field activities were performed in accordance with the UFP-SAP (Tetra Tech NUS, 2010a).

The RI for the Incinerator Disposal Site consisted of two distinctly different investigations, which were conducted in two phases. The first phase was the MEC investigation which included a detector-aided surface survey for MEC, followed by a subsurface geophysics investigation, an intrusive investigation of resulting anomalies, and limited removal actions. The second phase of the RI consisted of the MC investigation. This section summarizes the results of the MEC RI. Field activities associated with the MEC RI were performed in 2010 and 2011. The MEC investigation and removal results are presented in the MEC Geophysical Report, a separate stand-alone document, which is included as Appendix J.

The MEC RI was conducted in five general phases.

- Surveys
- Transect Vegetation Clearing
- Detector-Aided Surface Surveys
- Geophysical Surveys
- Target Anomaly Reacquisition and Intrusive Investigation

The following steps were performed as part of the MEC RI:

- Surveyed land to establish transect lines.
- Managed site vegetation - through controlled burning; grass, brush, and limb clearing.
- Dismantled existing piles of debris by hand to separate and identify potential MEC/MPPEH items from non-munitions scrap materials to the degree possible.
- Removed non-MEC surface debris by hand from the investigation area prior to MEC geophysical surveying.
- Documented and cleared potential MEC/MPPEH by conducting detector-aided surface surveys in 5- to 10-foot widths along each survey transect.
- Conducted Digital Geophysical Mapping (DGM) along single lines for each transect to provide the locations of sub-surface anomalies possibly representing MEC, and a delineation of the apparent landfill area following processing of the DGM data.

- Analyzed surface and subsurface results to guide the selection and positioning of intrusive anomaly investigation and MC sampling locations.
- Conducted intrusive MEC investigation at 80 selected possible MEC anomaly locations.
- Inspected and segregated all MEC/MPPEH/Material Documented as Safe (MDAS) items.
- Treated all MEC/MPPEH items via donor charge.
- Containerized and removed MDAS items off-site (done by a certified recycler).

A two-man UXO team was present on-site for 3 days in December of 2010 for a scheduled controlled burn performed at the site in order to clear vegetation from the investigation area. The controlled burn was deemed unsuccessful, and was only effective in removing a small percentage of vegetation.

Tetra Tech UXO personnel mobilized to NALF Cabaniss in January 2011, to initiate the MEC investigation with transect layout and vegetation management. The Senior UXO Supervisor (SUXOS) and UXO Safety Officer (UXOSO) held field team orientation meetings to ensure that essential personnel were familiar with the scope of field activities prior to entrance to the site. UXO personnel were demobilized in February 2011 until remobilization in May 2011.

Because of the intrusive nature of the RI investigation, an ESS was submitted to the Naval Ordnance Safety and Security Activity (NOSSA). The ESS was approved by the Department of Defense Explosives Safety Board (DDESB) in March 2011.

Utility clearance and a dig permit were obtained from NASCC for intrusive activities. Bird nesting surveys were also performed five times during the course of the spring-summer fieldwork (April 2011 through June 2011) to determine if and when work was permitted. All 24 survey transects were searched by a qualified biologist escorted by a UXO Technician during each of the five surveys conducted. Although several indications of nesting activity were observed during the surveys, the nests were removed and no delays were incurred from bird nesting activities. A copy of the bird nesting surveys is included in Appendix J.

9.1 SURVEYING

A UXO technician and surveyor established the northern transect endpoints to the north of Perimeter Road, and the southern transect endpoints located along the banks of Oso Creek. In total, 24 north-south trending transects spaced approximately 50 feet apart were staked and recorded. Each transect averaged 800 feet in length and 5 feet in width. Intermediate stakes were then placed along transects at 50-foot intervals from the start point to end point of transects 1 through 24. Additionally, a total of 60 sampling grid corner locations were surveyed and staked.

9.2 TRANSECT VEGETATION CLEARING

A controlled burn was attempted in December 2010, but was unsuccessful; therefore, the majority of vegetation was removed by brush cutting. All brush/vegetation cutting by the Subcontractor was performed with a UXO qualified escort. Pre-survey brush clearing (5 to 10-foot-wide paths) to allow for MEC surveys along planned transects was conducted by a Subcontractor and by Tetra Tech staff. Brush cutting and mowing of grass were required to prepare the sites for detector-aided surface surveys and DGM. Hand-held brush cutters/weed eaters (string or steel blade) were used to clear light vegetation and small grassy areas, and chain saws were used to remove heavier brush and small (less than 2-inch diameter) trees. Brush/vegetation cuttings were removed from the investigation site and mulched. The resulting piles of mulch were collected and left for future disposal along the eastern-most fire break.

A small portion of brush cutting was performed by UXO technicians in areas where known MEC was present. Also, additional brush cutting was required and performed by UXO technicians in some areas because of regrowth of vegetation. All vegetation management operations were performed using UXO avoidance.

9.3 DETECTOR-AIDED SURFACE SURVEYS

The detector-aided surface surveys were managed and performed by qualified UXO Technicians from Tetra Tech with oversight from a qualified UXO Manager and UXOSO/UXO Quality Control Specialist (UXOQCS) from Tetra Tech meeting the requirements stated in DDESB Technical Paper (TP) 18 (DDESB, 2004).

9.3.1 <u>General Methodology</u>

Detector-aided surface surveys were performed on all 24 transects. A survey width of 5 to 10 feet was established along survey transects. A Schonstedt GA-52Cx® magnetic locator and a White's Spectrum XLT all-metals detector were used for detector-aided surface surveys and intrusive investigations. An initial detector-aided surface survey was performed prior to DGM surveys to ensure that no surface MEC/MPPEH hazards were present. A Trimble GeoXH GPS unit with sub-meter accuracy capability was used to record the locations of items detected during detector-aided surface surveys and anomaly intrusive investigations.

A Geophysical System Verification (GSV) was performed to provide rigorous QA of the MEC geophysical survey performance. The GSV was composed of two main processes. The first was an instrument verification strip (IVS), and the second was blind seeding in the production area.

Surface anomalies were investigated and cleared. All MEC/MPPEH items discovered during the detector-aided surface survey and anomaly intrusive investigations were handled in accordance with the DDESB approved ESS. (Tetra Tech NUS, 2011). Non-munitions related debris was relocated outside the investigation area.

9.3.2 Detector-Aided Surface Survey Results

Lists of MDAS and MEC/MPPEH items located during the detector aided surface survey are presented in Tables 9-1 and 9-2, respectively. Figure 9-1 shows locations of MEC/MPPEH surface discoveries.

9.4 GEOPHYSICAL SURVEYS

Geophysical surveys were performed on all 24 transects. DGM was performed by Tetra Tech in May and June, 2011 to search for anomalies that could possibly represent subsurface MEC, and anomalous responses that could help delineate a landfill.

DGM for possible MEC was conducted using a Geometrics model G-858G gradient cesium-vapor magnetometer (ferrous metal detector) and a Geonics, Ltd. EM61-MK2 (EM61) all-metals detector. DGM for possible landfill boundary was conducted using a Geonics, Ltd. EM31-MK2 (EM31) terrain conductivity meter, supplemented by use of the G-858G and EM61 used for the MEC surveys. A sub-meter accuracy category differential global positioning system (DGPS) unit was integrated to collect readings once per second to provide positioning for geophysical data. On site QC control point testing was performed by comparing the survey DGPS unit readings to two survey control points with established coordinates.

9.4.1 G-858G Magnetometer Results

A magnetometer survey was performed first using a Geometrics G-858G instrument to search for ferrous metallic anomalies that could be representative of ferrous MEC, and to aid in landfill delineation. Data are presented on a base map on Figure 9-2 by color contour slices that use varying color shades to represent variations in instrument values along the transects. The color bar provided on Figure 9-2 provides an indication of instrument values corresponding to the color contour shades. Background or non-anomalous instrument response is represented by a yellow color shade, and anomalous response is represented by green through blue (down on the color bar), and orange through pink color shades (up on the color bar). Highest amplitude responses are dark blue and pink-colored shades.

DGM results are depicted on Figure 9-2, and 468 interpreted discrete anomalies are shown. The nature of the interpreted anomalies (i.e., whether they are munitions or not) cannot be determined from the geophysical data alone, but all interpreted anomalies could potentially represent MEC/MPPEH.

Predominantly, anomalies are located in the northern half of the site. Based on their large abundance, close grouping, and location north of an interpreted shallow groundwater boundary from EM31 surveying, it is logical to interpret a possible landfill here (given the site history of a landfill being present). Furthermore, the areal size of this anomaly concentration is on the order of 6 acres, which has been documented as a potential landfill size in the historical description of the site from the PA. The northeastern limit of the interpreted possible landfill is not clearly defined because of the prevalence of aboveground metal and by the survey limits in that portion of the site. Very few anomalies are evident in the southern half of the site, and this combined with an interpreted shallow groundwater zone from EM31 data in the southern half of the site, suggest that landfilling and anthropogenic burial in general were limited to the northern half of the site. The very northern part in the western half of the site does not appear to have much anomalous response or burial of ferrous metallic items (except in the very northwest corner around some aboveground metal that with respect to the other surrounding data appears isolated). Aboveground debris is noted throughout Figure 9-2 by a circle symbol, and parts of two broken fences are shown by a dashed line symbol. The presence or absence of subsurface metal in these locations cannot be determined from the geophysical data alone.

9.4.2 <u>EM61 Results</u>

A survey was performed using a Geonics EM61-MK2 (EM61) instrument to search for metallic anomalies that could be representative of MEC or MPPEH, and to aid in landfill delineation. Data are presented on a base map on Figure 9-3 by color contour slices that use varying color shades to represent variations in instrument values along the transects. The color bar provided on Figure 9-3 provides an indication of instrument values corresponding to the color contour shades. Background or non-anomalous instrument response is represented by a green to yellow color shade, and anomalous response is represented by blue (lower on the color bar), and orange through pink color shades (upper on the color bar). Highest amplitude responses are pink-colored shades.

DGM results are depicted on Figure 9-3, and 341 interpreted discrete anomalies are shown. EM61 can detect metal of various types which is represented in the interpreted anomalies. EM61 anomalies not in common with G-858G anomalies suggest that the anomaly is non-ferrous metal. The nature of the interpreted anomalies (i.e., whether they are munitions or not) cannot be determined from the geophysical data alone, but all interpreted anomalies could potentially represent MEC/MPPEH.

As with the G-858G data, the high concentration of anomalies is located in the northern half of the site; based on their large abundance, close grouping, and location north of the interpreted shallow groundwater boundary, it is logical to interpret a possible landfill here from this data as well. The northeastern limit of the interpreted possible landfill is not clearly defined because of the prevalence of aboveground metal and the survey limits in that portion of the site. Very few anomalies are evident in the southern half of the site, and this combined with the interpreted shallow groundwater in the southern half of the site, suggest that landfilling and anthropogenic burial in general were limited to the northern half of the site. The very northern part in the western half of the site does not appear to have as much anomalous response or burial of metallic items (except in the very northwest corner around some aboveground metal that with respect to the other surrounding data appears isolated).

9.4.3 EM31 Results

DGM was performed using a man-portable Geonics, Ltd. EM31-MK2 (EM31) unit to attempt to delineate a landfill, and to search for potential large caches of munitions items. EM31 is a terrain conductivity instrument that can detect anomalies caused by stark shallow (top 15 feet) ground conductivity changes, and also anomalies caused by all types of large metal. Data are presented on a base map on Figure 9-4 as color contour slices that use varying color shades to represent variations in instrument values along the transects. Background or non-anomalous instrument response is represented by a dark blue color shade, and anomalous response is represented by green through pink color shades on the contour map and color bar scale. Highest amplitude responses are pink-colored shades.

Many anomalies are evident in the data, and two very broad anomalous responses (each covering several acres in size) are evident by pink color contour in the northern and southern portions of the site. Judging by the size and coincident location of the large southern pink-colored anomalous response with the lowlands and mudflats of the site, this anomalous response is interpreted as being caused by shallow groundwater, and the boundary is shown by a solid line symbol on Figure 9-4. The northern large anomalous response is interpreted to be possible landfilling and disposal (given the historical description of a landfill being present), and a short-dashed line symbol is used to show the interpreted landfill/disposal on Figure 9-4. Locations of aboveground disposed items were noted in the field, and their numerous locations are shown by circle symbol on the figure. Aboveground disposal items are interspersed among the larger subsurface anomalous response, and it is not possible from the geophysical data alone to determine if a subsurface landfill is present in areas where anomalous readings appear evident from surface metal and debris. Therefore, the interpretation of the landfill has been combined with disposal to account for intermingled surface and subsurface anomalous responses. Some of the interpreted landfill (the northern portion of it) does not have corresponding magnetometer or EM61 anomalies, inferring that non-metallic landfill or ash, or perhaps different construction fill may also be present in those locations. Also, the EM31, while good at detecting large metal objects (i.e., 55-gallon drum size), is not good at detecting small metal objects. Some instrument sensitivity in detecting large metal objects may have been lost under the very electrically conductive site conditions that made it necessary to use the least sensitive instrument range (1000 scale) on the instrument. Consequently, the interpreted landfill/disposal was expanded based on interpretation of the G-858G and EM61 data, which are more sensitive to metal and can detect a greater response from metallic items.

9.5 TARGET ANOMALY REAUQISITION AND INTRUSIVE INVESTIGATION

Following DGM surveying, cumulative detector-aided and DGM survey results and interpretation were prepared and presented on a TRIAD conference call to the project team for consensus on a follow-up intrusive investigation approach. Tetra Tech prepared maps showing MEC/MPPEH surface finds, and suspect subsurface anomalies that could potentially represent MEC. A higher number of interpreted anomalies was determined from the magnetometer (G-858G) data (many of these anomalies in common with the EM61 dataset), and the magnetometer data were used to select intrusive locations. Visual Sample Plan (VSP) modeling was applied to the 468 anomalies, and it was determined that according to VSP, 55 anomalies would need to be intrusively investigated. If these 55 anomalies were found not to contain MEC/MPPEH/MDAS material, then there would be a 95 percent confidence that the interpreted anomalies would be free of ordnance-related material. Twenty-five additional intrusive locations were selected to learn about anomalies near the edges of the site and whether expanded investigation would be needed to capture MEC or MPPEH extent. Figure 9-5 shows locations of the 468 identified anomalies; a green cross symbol indicates that an anomaly was intrusively investigated for MEC/MPPEH, and a magenta x symbol indicates that an anomaly was not intrusively investigated.

Each intrusive “dig team” consisted of two qualified UXO personnel including at least one UXO Technician II. Dig teams were supervised by a UXO Team Leader (UXO Technician III) who supervised up to three dig teams at one time as long as visual and verbal communications were maintained between the UXO Team Leader and his assigned dig teams. Intrusive activities did not begin until the UXOSO had given a safety briefing, the UXO Team Leader had given a site-specific safety briefing to the team, communications were established, and all nonessential personnel were evacuated outside the exclusion zone (EZ).

Target anomalies were flagged and were intrusively investigated manually using hand tools. Target anomalies were investigated to a maximum depth of 2 feet within the landfill boundary, and to a maximum depth of 6 feet outside of the landfill boundary. However, no MEC/MPPEH items were discovered at a depth greater than 24 inches below ground surface. In total, 132 MEC/MPPEH items were located. Twenty MEC/MPPEH items were discovered during the initial detector-aided surface survey, and 112 MEC/MPPEH items were discovered during the intrusive investigation.

The anomaly intrusive investigation resulted in 3 of the 80 locations containing MEC/MPPEH/MDAS, and 2 additional locations containing MDAS. The sub-surface MDAS and sub-surface MEC/MPPEH are presented in Tables 9-3 and 9-4, respectively.

9.6 MEC/MPPEH MANAGEMENT OPERATIONS

During the detector-aided surface survey operation and intrusive investigations, MEC items determined not safe to move were treated using Blow-in-Place (BIP) procedures. MEC that could not be treated on the same day was secured by the SUXOS and was maintained until treatment with a donor charge, or until responsibility for its security was transferred per instructions from the NASCC Point of Contact (POC). MEC determined to be safe to move were secured in a Type II storage magazine until treated with a donor charge. MPPEH determined to be material documented as an explosive hazard (MDEH) were secured in a Type II storage magazine until treated with a donor charge. MPPEH determined to be "explosive free" was certified as MDAS by the SUXOS and UXOQCS. MDAS was consolidated in a container located near the site, 600 feet southeast of Runway 31 in a location determined by the NASCC POC. The container was kept under the custody of the SUXOS, and was sealed after each addition of MDAS, until the container was turned over to the qualified recycler, Demil Metals Inc. Prior to opening the container, the custody seal was inspected. Demil Metals Inc. was responsible for the custody of the material, transportation, maintaining the accompanied certification paperwork, and demilitarization/shredding if required after receipt. All other recovered scrap was left at the site at a location designated by the NASCC POC

A total of 12 demolition shots were performed: four shots on May 27, 2011; three shots on June 10, 2011; and five shots on June 17, 2011. All activities were performed in a safe and effective manner. All demolition operations were deemed successful. This included the consumption of all donor charges and energetic materials being consumed on the day received.

9.7 MUNITIONS AND EXPLOSIVES OF CONCERN HAZARD ASSESSMENT

A MEC hazard assessment (MEC HA) was prepared for the Incinerator Disposal Site to assess potential explosive hazards to human receptors. The MEC HA allows a project team to evaluate the potential explosive hazard associated with a munitions response site (MRS), given current conditions and under various cleanup, land use activities, and land use control alternatives. The MEC HA addressed human health and safety concerns associated with potential exposure to MEC at the Incinerator Disposal Site at NALF Cabaniss. It did not directly address environmental or ecological concerns that might be associated with MEC. A copy of the MEC HA is presented in Appendix K.

Fives scenarios were evaluated in the MEC HA as presented in Table 9-5. The hazard level category determination ranged from 3 to 4, depending on the scenario. A Hazard Level 3 identifies a MRS with moderate potential explosive hazard conditions. Typical characteristics of a Hazard Level 3 MRS include the following:

- Discarded military munitions (DMM) on the surface, or intrusive activities that overlap with minimum depths of DMM located only subsurface.
- Former target area, open burn/open detonation area, function test range, or maneuver area that has undergone a surface cleanup.
- Moderate or limited accessibility, and a low number of contact hours.

A Hazard Level 4 identifies MRS with low potential explosive hazard conditions. The presence of MEC at an MRS means that an explosive hazard may exist. Therefore, MEC may still pose a hazard at a Hazard Level 4 MRS. Typical characteristics of an MRS in Hazard Level 4 include the following:

- A MEC cleanup was performed or MEC is only located subsurface, below the depth of receptor intrusive activities.
- Energetic Material Type is propellant, spotting charge, or incendiary.
- Accessibility is Limited or Very Limited, and contact hours are few or very few. This may be the result of land use controls (LUCs).

9.8 SUMMARY OF MEC RI

MEC geophysical survey investigations were performed along 24 north to south trending transects on 50-foot spacing that covered the entirety of the Incinerator Disposal Site as planned in the MEC UFP-SAP (Tetra Tech NUS, 2010a). Along these 24 transects, detector-aided surface surveys were utilized to search for, and if detected, remove MEC/MPPEH and other metal from the transects. Numerous surface MEC/MPPEH/MDAS items were discovered in the northern portion of the site along eight of the transects.

Next, a DGM surveying was conducted along the north to south trending transects to help delineate the horizontal extent of the landfill and to search for buried metal that could potentially represent MEC/MPPEH/MDAS items. After comparing the G-858G, EM61 and EM31 results, the limits of the landfill boundary were defined in the northern portion of the site, and over 400 anomalies potentially representing MEC/MPPEH/MDAS were interpreted from the DGM data. The project team decided on 80 of the possible MEC anomalies for intrusive investigation (locations scattered around the site) to establish a 95 percent confidence of the presence or absence of ordnance-related material in the anomalies, as well as to verify the limits of the landfill. The results of the intrusive investigation yielded numerous ordnance-related items in the subsurface along the northwestern portion of the site along transect No. 5. No surface or subsurface MEC/MPPEH/MDAS was discovered within 100 feet of the survey boundary; therefore, expanded survey coverage was not required.

The RI reduced the hazard/risk at NALF Cabaniss, but did not eliminate it. A detector-aided surface survey was conducted along the 24 north-south trending transects on 50-foot spacing at the former

Incinerator Disposal Site. Through intrusive investigations and subsurface surveys along these transects, the risk associated with the areas of investigation was minimized. However, the purpose of this investigation was to characterize the nature and extent of MEC contamination, and not to perform a removal action over the entire Incinerator Disposal Site. Therefore, it is likely that more MEC/MPPEH is present at the surface and in the subsurface at the site, especially between the transects in the northern portion where the MEC/MPPEH were discovered, and the majority of the DGM anomalies were detected. The areas between the transects that were not investigated are known to present an MEC risk and will continue to present a hazard until future assessment and removal actions are performed.

TABLE 9-1

**MDAS TRACKING LOG – SURFACE SURVEY ITEMS
DETECTOR AIDED SURFACE SURVEY
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 of 1**

CONTROL #	ITEM	Area location	Northing	Easting
53	(1) 2.75 inch Fins (1) Cartridge Actuated Device (CAD)	Transect 9	17143089.85	1328962.84
54	40mm Practice	Transect 9	17143041.65	1328961.39
55	(33) 20mm Cartridge cases	Transect 10	17143014.56	1329011.11
56	Flare Cartridge	Transect 14	17143056.32	1329209.42
30	20mm Target Practice (TP)	Transect 5	17143035.60	1328761.36
33	AN-M23 Practice Bomb	Transect 5	17143027.93	1328758.12
35	(2) 20mm Target Practice	Transect 5	17143029.16	1328762.11
36	CAD & OJIVE 20mm	Transect 5	17143026.03	1328759.56
37	2.25" Ballistic Nose	Transect 5	17143017.61	1328761.13
57	CAD	Transect 6	17143041.61	1328812.92
40	(4) 3.5" Rockets	Transect 6	17143031.63	1328810.36
43	(27) CAD's	Transect 6	17142989.65	1328812.72
44	(4) 20mm TP, (9) 20mm Cartridge	Transect 6	17142989.65	1328812.72
45	(4) 40mm Cartridge cases	Transect 6	17142989.65	1328812.72
46	(23) Small Arms Cart Cases	Transect 6	17142989.65	1328812.72
47	CAD	Transect 7	17143018.45	1328860.60
48	40mm Shape	Transect 7	17143017.85	1328856.66
49	(4)CAD's,(2)40mm Fuze parts (1) 40mm Cartridge Case	Transect 7	17143022.46	1328859.54
50	(4)20mmTP,(1)40mm Practice. (4)CAD's,(15) Assorted Cartridge Cases, (1) 40mm Cartridge Case, (1)40mm Fuze parts	Transect-7	17143014.64	1328863.13
51	(1)2.75" Fins, (16) Assorted Cartridge Cases	Transect-7	17143008.79	1328863.49
52	(3)20mm TP,(8)40mm Assorted pieces (4) CAD's, (2) Assorted Cartridge Cases	Transect-7	17143004.00	1328858.32
59	(2) 2.75" fins	Transect 5	17143029.47	1328760.84

TABLE 9-2

MEC/MPPEH TRACKING LOG – SURFACE SURVEY ITEMS
DETECTOR AIDED SURFACE SURVEY
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 of 1

CONTROL #	ITEM	Area location	Northing	Easting
25	40mm Grenade	Transect 7	17143028.59	1328839.93
26	40mm Grenade	Transect 7	17143012.45	1328855.17
27	2.75 inch Warhead	Transect 4	17143043.01	1328713.01
28	37mm	Transect 8	17142961.05	1328915.13
29	AN-M23	Transect 5	17143059.40	1328761.87
31	AN-M23	Transect 5	17143634.47	1328760.10
32	AN-M23	Transect 5	17143030.14	1328758.54
34	AN-M23	Transect 5	17143029.35	1328756.93
38	2.75" Warhead	Transect 5	17143026.48	1328758.58
39	2.75" Warhead	Transect 5	17143026.48	1328758.58
58	AN M23	Transect 5	17143034.18	1328763.47
60	AN M23	Transect 5	17143023.16	1328759.43
61 & 62	(2) 2.75" Warheads	Transect 5	17143009.10	1328760.62
74	(3) 3.5 inch Rocket	Transect 6	17143031.63	1328810.36

TABLE 9-3

MDAS TRACKING LOG – ANOMALY INTRUSIVE INVESTIGATION ITEMS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1

<table>
<tr><th>CONTROL #</th><th>ITEM</th><th>Area location</th><th>Northing</th><th>Easting</th></tr>
<tr><td>Burial Pit</td><td>(300+) 20mm TP</td><td>Transect 5</td><td>17143034.53</td><td>132870.91</td></tr>
<tr><td>Burial Pit</td><td>(5) 2.75" rocket warhead</td><td>Transect 5</td><td>17143034.53</td><td>132870.91</td></tr>
<tr><td>Burial Pit</td><td>2.25" rocket motor venturi</td><td rowspan="4">Transect 5</td><td rowspan="4">17143000.57</td><td rowspan="4">1328762.49</td></tr>
<tr><td>Burial Pit</td><td>(5) CAD</td></tr>
<tr><td>Burial Pit</td><td>(3) CAD Shipping Containers</td></tr>
<tr><td>Burial Pit</td><td>(2) AN-M23</td></tr>
</table>

TABLE 9-4

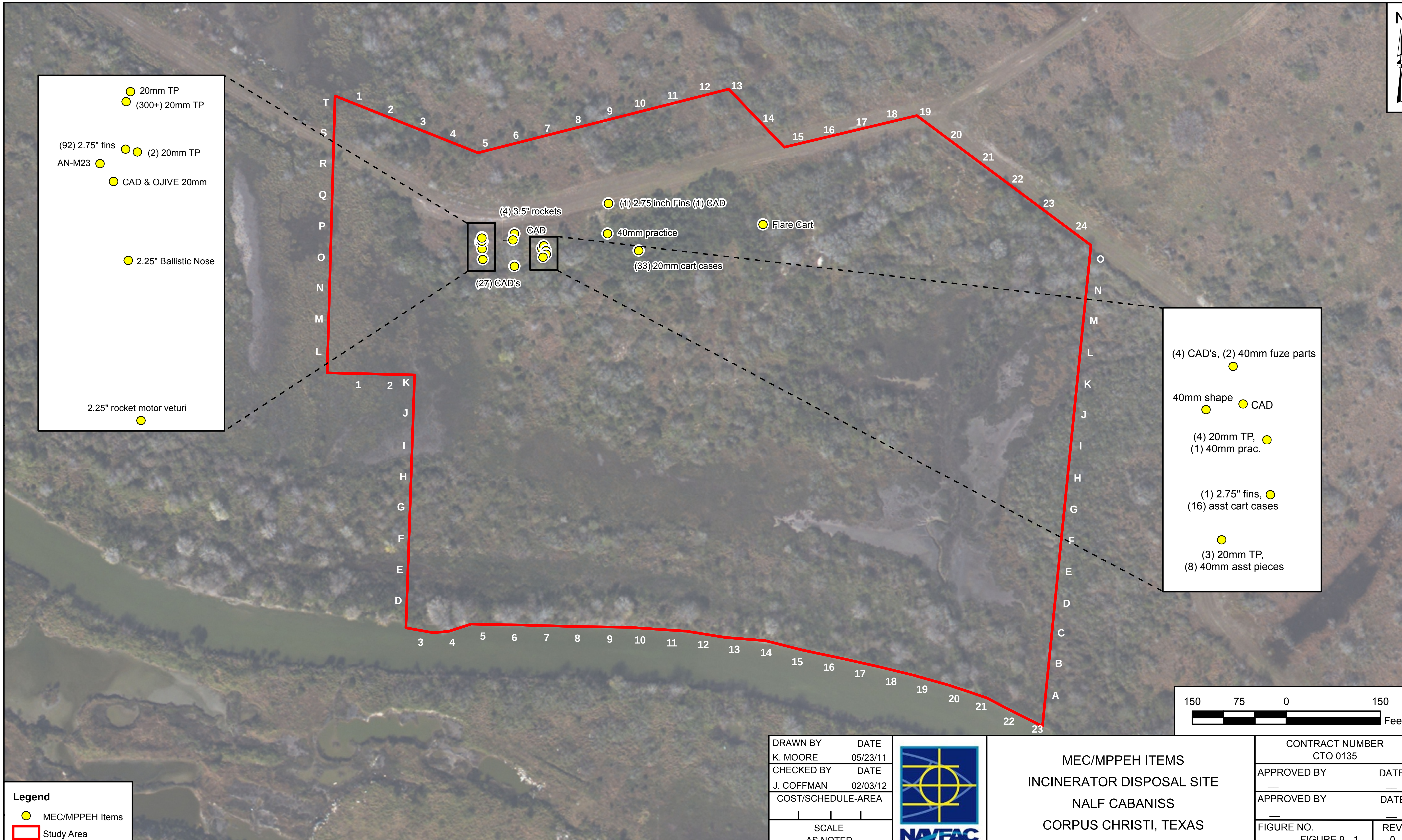
**MEC/MPPEH TRACKING LOG – ANOMALY INTRUSIVE INVESTIGATION ITEMS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 of 1**

CONTROL #	ITEM	Area location	Northing	Easting
70	(106ea) AN-M23 Practice Bomb	Transect 5	17143034.53	1328750.91
71	(5ea) 2.75 inch Rocket Warhead	Transect 5	17143022.37	1328759.03
73	2.75 inch Rocket Warhead	Transect 5	17143000.57	1328762.49

TABLE 9-5

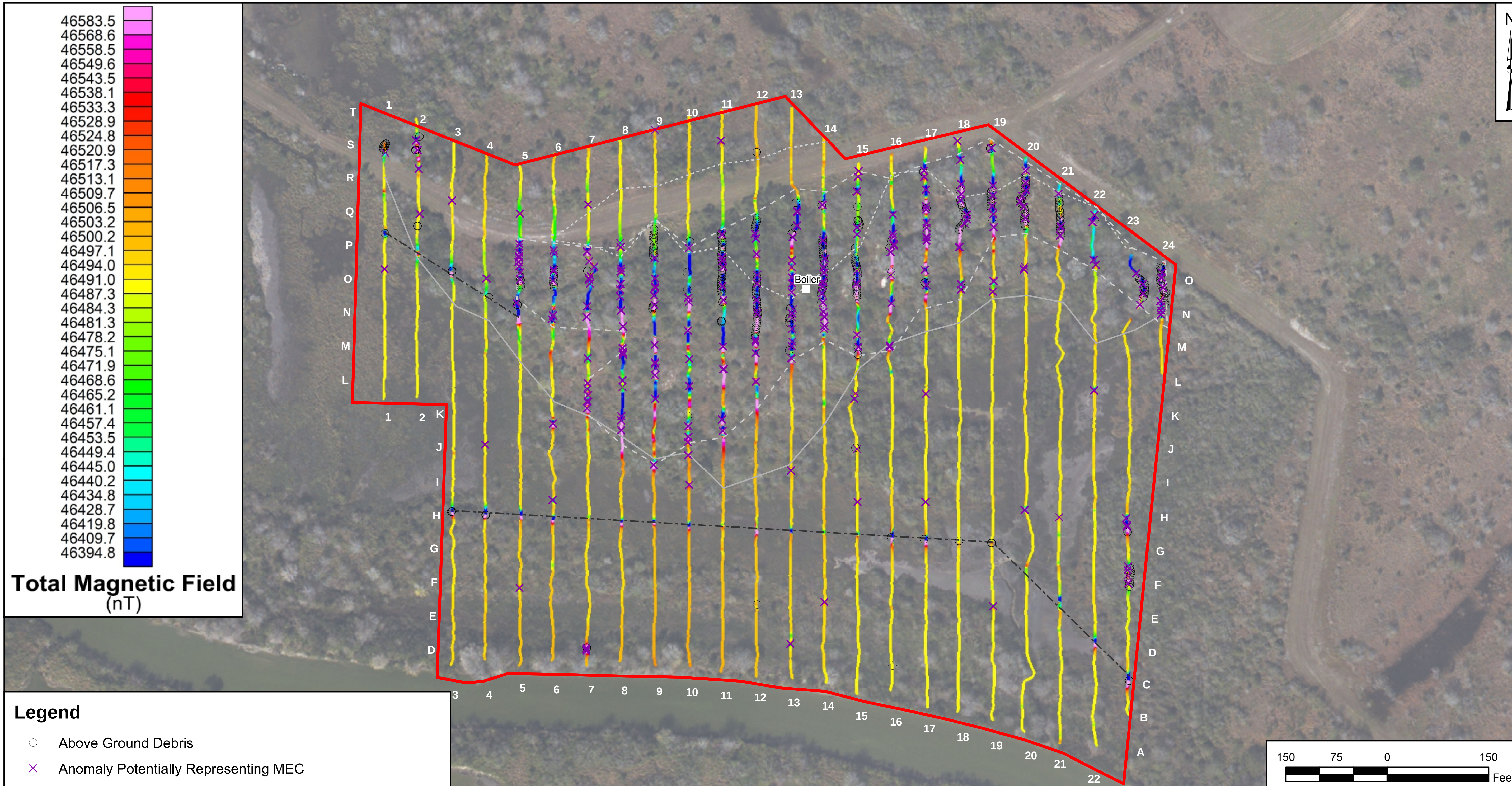
MEC HA HAZARD LEVEL DETERMINATION
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 of 1

SCENARIO	HAZARD LEVEL CATEGORY	SCORE
Current Use Activities	3	710
Future use Activities	4	445
Response Alternative 1: Surface Removal	3	560
Response Alternative 2: Surface and Subsurface Removal	4	400
Response Alternative 3: No Action	3	725



DRAWN BY K. MOORE	DATE 05/23/11	NAVFAC	MEC/MPPEH ITEMS INCINERATOR DISPOSAL SITE NALF CABANISS CORPUS CHRISTI, TEXAS	CONTRACT NUMBER CTO 0135
CHECKED BY J. COFFMAN	DATE 02/03/12			APPROVED BY — DATE —
COST/SCHEDULE-AREA				APPROVED BY — DATE —
SCALE AS NOTED				FIGURE NO. FIGURE 9 - 1 / REV 0

P:\GIS\COURPUSCHRISTI_NAS\MXD\INCINERATOR_G858G_INTERP.MXD 02/09/12 JN



Legend

- Above Ground Debris
- Anomaly Potentially Representing MEC
- EM31-inferred Possible Landfill Boundary/Construction Fill
- EM31-inferred Shallow Groundwater (south of boundary line)
- G-858G-inferred Possible Landfill Boundary
- Broken Fence
- Study Area

DRAWN BY K. MOORE	DATE 5/31/11	G-858 MAGNETOMETER COLOR CONTOUR MAP AND INTERPRETATION INCINERATOR DISPOSAL SITE NALF CABANISS CORPUS CHRISTI, TEXAS
CHECKED BY J. COFFMAN	DATE 02/09/12	
COST/SCHEDULE-AREA		
SCALE AS NOTED		

NAVFAC

CONTRACT NUMBER CTO 0135	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO. FIGURE 9-2	REV 0

P:\GIS\COURPUSCHRISTI_NAS\MXD\INCINERATOR_EM61_INTERP.MXD 02/09/12 JN

Legend

- ○ Above Ground Debris
- × Anomaly Potentially Representing MEC
- EM31-inferred Possible Landfill Boundary/Construction Fill
- EM31-inferred Shallow Groundwater
- G-858G-inferred Possible Landfill Boundary
- Broken Fence
- Study Area

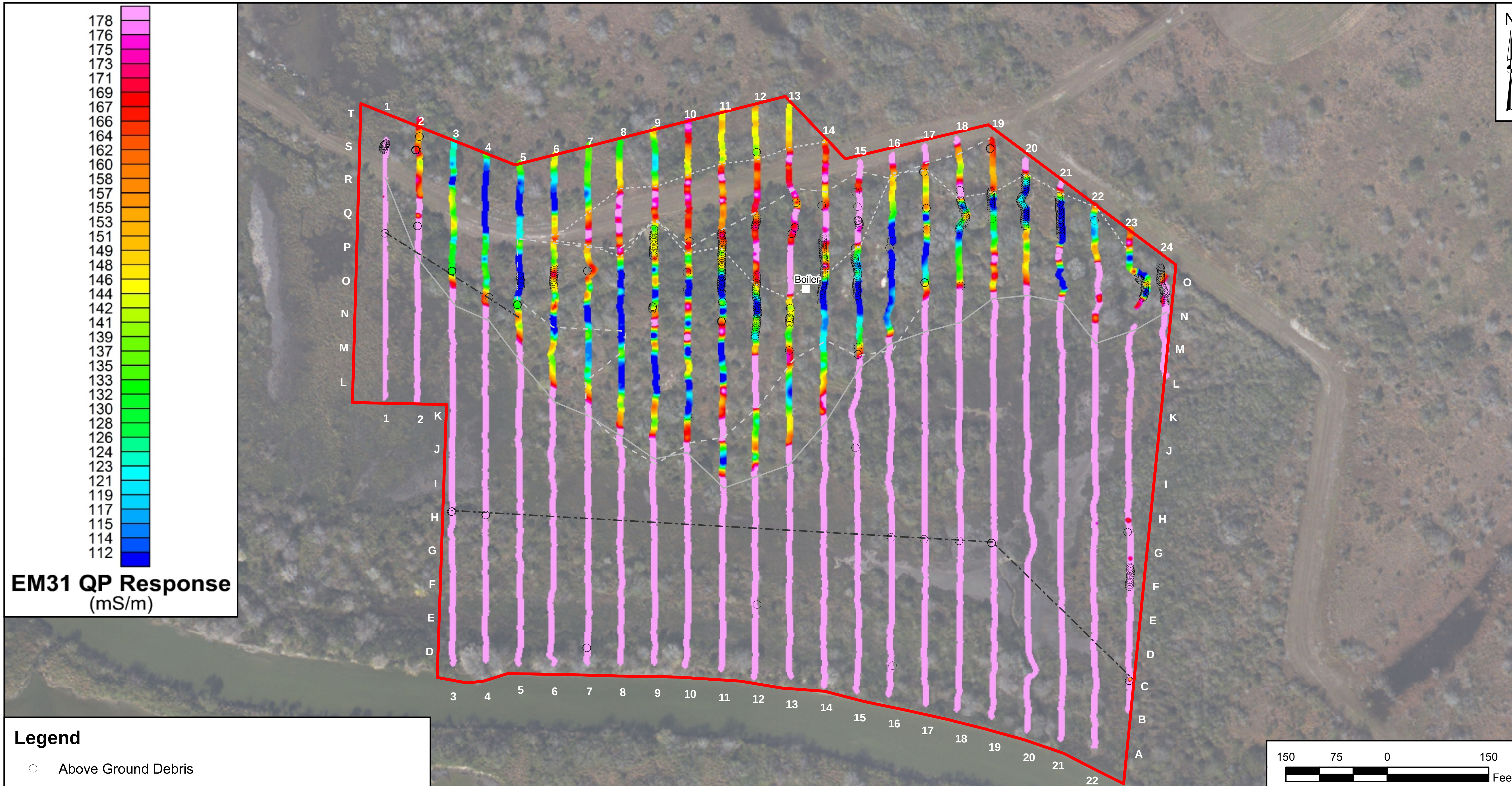
DRAWN BY K. MOORE	DATE 5/31/11
CHECKED BY J. COFFMAN	DATE 02/09/12
COST/SCHEDULE-AREA	
SCALE AS NOTED	

NAVFAC

EM61 COLOR CONTOUR MAP
AND INTERPRETATION
INCINERATOR DISPOSAL SITE
NALF CABANISS
CORPUS CHRISTI, TEXAS

CONTRACT NUMBER CTO 0135	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO. FIGURE 9-3	REV 0

P:\GIS\CORPUSCHRISTI_NAS\MXD\INCINERATOR_EM31_INTERP.MXD 02/09/12 JN



Legend

- Above Ground Debris
- EM31-inferred Possible Landfill Boundary/Construction fill
- EM31-inferred Shallow Groundwater
- G-858G-inferred Possible Landfill Boundary
- Broken Fence
- Study Area

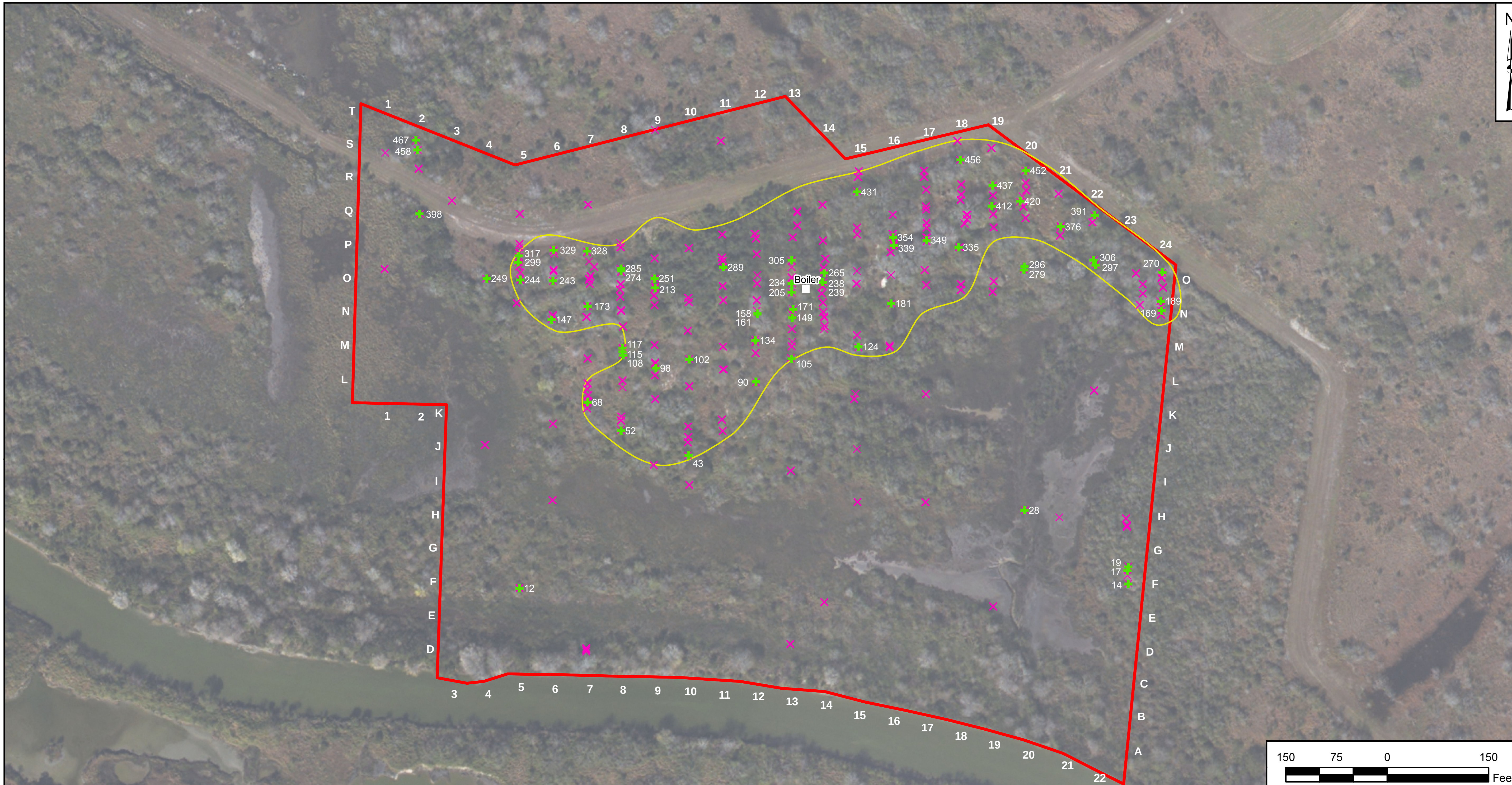
DRAWN BY K. MOORE	DATE 5/31/11
CHECKED BY J. COFFMAN	DATE 02/09/12
COST/SCHEDULE-AREA	
SCALE AS NOTED	

NAVFAC

EM31 COLOR CONTOUR MAP
AND INTERPRETATION
INCINERATOR DISPOSAL SITE
NALF CABANISS
CORPUS CHRISTI, TEXAS

CONTRACT NUMBER CTO 0135	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO. FIGURE 9-4	REV 0

P:\GIS\COURPUSCHRISTI_NAS\MXD\INCINERATOR_DGM_SURVEY.MXD 02/03/12 JN



Legend

Anomaly Further Investigation

- Yes (with DGM anomaly number)
- No
- Landfill/Debris Area
- Study Area

DRAWN BY K. MOORE	DATE 06/02/11	NAVFAC	RESULTS AND INTRUSIVE INVESTIGATION LOCATIONS DGM SURVEY INCINERATOR DISPOSAL SITE NALF CABANISS CORPUS CHRISTI, TEXAS	CONTRACT NUMBER CTO 0135
CHECKED BY J. COFFMAN	DATE 02/03/12			APPROVED BY __ DATE __
COST/SCHEDULE-AREA				APPROVED BY __ DATE __
SCALE AS NOTED				FIGURE NO. FIGURE 9 - 5 / REV 0

10.0 CONCLUSIONS AND RECOMMEDATIONS

This section presents the conclusions drawn from the SI and RI field investigations and analytical results, and provides recommendations for future work.

10.1 INCINERATOR DISPOSAL SITE

10.1.1 Conclusions – Munitions Constituents

Soil

- Four metals (antimony, cadmium, copper, and lead) were detected in the shallow surface soils (0 to 1 foot bgs) at concentrations greater than then PAL during the SI. During the RI, there were no metal detections in the soil samples greater than the PAL.

- Perchlorate, PAHs, explosives and the remaining TAL metals were either detected at concentrations greater than the MDL but less than the PALs, or were not detected at concentrations greater than the MDL during the SI and RI.

- The locations of the metals exceedances are at known areas of MEC/MPPEH, thus representing biased “hot spot” results. Figure 10-1 shows the approximate extent of the metals exceedances.

- The horizontal extent of MC contamination has been defined through the use of MI sampling.

- The vertical extent of MC contamination has been defined through the use of subsurface soil samples.

- The MC in soil exceedances are confined to the known areas of MEC impact in the northern portion of the site.

- The areal extent of MC impact to surface soil has been reduced from 17 acres to approximately 1.5 acres.

Groundwater

- Explosives, perchlorate, and TAL metals were either not detected at concentrations greater than the MDL, or when detected the concentrations were less than the PAL during the RI.

- The groundwater at the site has a TDS of greater than 10,000 mg/L; therefore, it would qualify as a Class 3 groundwater resource.

10.1.2 Recommendations – Munitions Constituents

- The horizontal and vertical extent of MC in surface and subsurface soil and groundwater has been determined; therefore, no further delineation is recommended.
- Nature and extent of surface and subsurface soil and groundwater MC impacts within the footprint of the known and unknown MEC impacted area (approximately 1.5 acres) have not been defined; therefore, additional horizontal and vertical delineation within this approximate 1.5 acres area is recommended.
- It is further recommend that the additional delineation activities only be conducted after all MEC removal actions are complete.
- Based on the known MC exceedances in soil, it is recommended that the Incinerator Disposal Site proceed to the Feasibility Study phase of the CERCLA process.

10.1.3 Conclusions – Munitions and Explosives of Concern

- A UXO detector-aided surface survey and MEC geophysical survey investigations were performed along 24 transects. Numerous surface MEC/MPPEH was discovered along eight transects in the northern portion of the site.
- The results of the intrusive investigation yielded numerous MEC/MPPEH subsurface items in the northwestern portion of the site along transect 5.
- In the northern portion of the site, anomalies potentially representing MEC/MPPEH were interpreted from the DGM data. The size of the area is approximately 1.5 acres.
- No surface or subsurface MEC/MPPEH was discovered within 100 feet of the survey boundary; therefore, expanded survey coverage was not required.
- A potential landfill boundary in the northern portion of the site was interpreted from the DGM data and surface expressions of debris. The size of the landfill is approximately 5.2 acres.
- The MEC geophysical investigation coverage did span across the site (study area), but did not include a complete or dense coverage of the site. Data were generally limited to 50-foot spaced transects in one direction across the site.

- It is possible that more MEC/MPPEH is present at the surface and in the subsurface at the site, especially in the northern portion where the MEC/MPPEH and the majority of the DGM anomalies were discovered or detected.

- The transects and surrounding uninvestigated areas are known to present an MEC risk and will continue to present a hazard until future assessment and removal actions are performed.

10.1.4 Recommendations – Munitions and Explosives of Concern

- The horizontal extent of MEC/MPPEH in surface and subsurface soil has been determined; therefore, no further horizontal delineation is recommended.

- Delineation of MEC/MPPEH within the footprint of the MEC impacted area (approximately 1.5 acres) has not been defined; therefore, continued intrusive investigation of the RI DGM anomalies and expanding survey coverage in the northern half of the existing site boundary is recommended.

- Based on the known MEC/MPPEH present at the site, it is recommended that the Incinerator Disposal Site proceed to the Feasibility Study phase of the CERCLA process.

10.1.5 Conclusions – SERA

- Antimony, cadmium, copper, lead, manganese, selenium, and zinc were retained as COPCs for potential risks to plants.

- Barium, copper, manganese, selenium, and zinc were retained as COPCs for potential risks to soil invertebrates.

- No chemicals were retained as COPCs for potential risks to sediment invertebrates.

- Cadmium was retained for potential risks to terrestrial invertivorous mammals.

- The SERA indicated potential risk to terrestrial plants, soil invertebrates, mammals and birds from COPCs. However, the locations of the metals exceedances are highly localized, and the areal extent of the COPCs is limited (less than 0.1 acres).

10.1.6 Recommendations – SERA

- It is recommended that hot spot removal action be conducted during the FS to remove the limited areas of elevated metals concentrations in surface soil.

- It is recommended that additional data be collected and evaluated as part of the Feasibility Study, and that the SERA be updated to determine if additional site-specific studies (e.g., toxicity testing, biological surveys, etc.) would be required.

10.2 SKEET RANGE

10.2.1 Conclusions – Munitions Constituents

Soil

- Five PAHs [benzo(a)anthracene; benzo(a)pyrene; benzo(b)flouranthene; dibenzo(a,h)anthacene; and indeno(1,2,3-cd)pyrene] and one metal (lead) were detected in the shallow surface soils (0 to 1 foot bgs) at concentrations greater than the PAL during the SI and RI.

- The remaining metals and PAHs were either detected at concentrations greater than the MDL but less than the PALS, or were not detected at concentrations greater than the reporting limits in the shallow surface soils (0 to 1 foot bgs) during the SI and RI.

- PAHs were either detected at concentrations greater than the reporting limits but less than the PALS or were not detected at concentrations greater than the reporting limits in the subsurface soils (greater than 1 foot bgs) during the RI

- The horizontal extent of PAH contamination in soil has been defined through the use of surface soil sampling. Figure 10-2 shows the approximate extent of the PAH exceedances.

- The vertical extent of MC contamination has been defined through the use of subsurface soil samples.

- The areal extent of PAH impact to surface soil is approximately 6 acres.

Groundwater

- PAHs were not detected at concentrations greater than the reporting limits in groundwater samples collected at the former Skeet Range during the RI.

- The groundwater at the site has a TDS of greater than 10,000 mg/L; thus, it would qualify as a Class 3 groundwater resource.

10.2.2 Recommendations – Munitions Constituents

- The horizontal and vertical extent of COCs in soil has been determined; therefore, no further delineation is recommended.

- Groundwater has not been impacted by site activities; therefore, no further action for groundwater is recommended.

- Based on the known PAH exceedances in surface soil, it is recommended that the former Skeet Range proceed to the Feasibility Study phase of the CERCLA process.

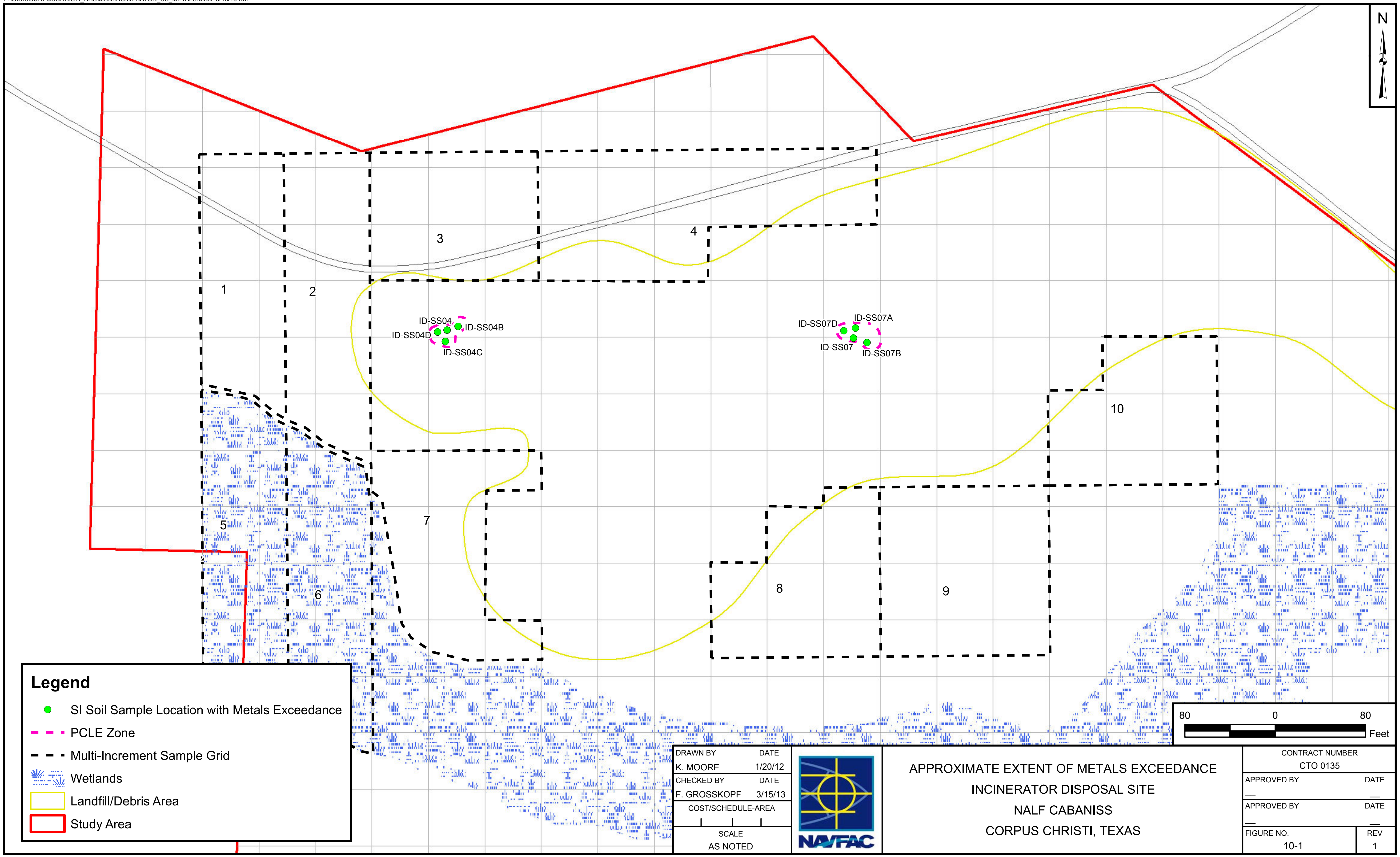
10.2.3 Conclusions - SERA

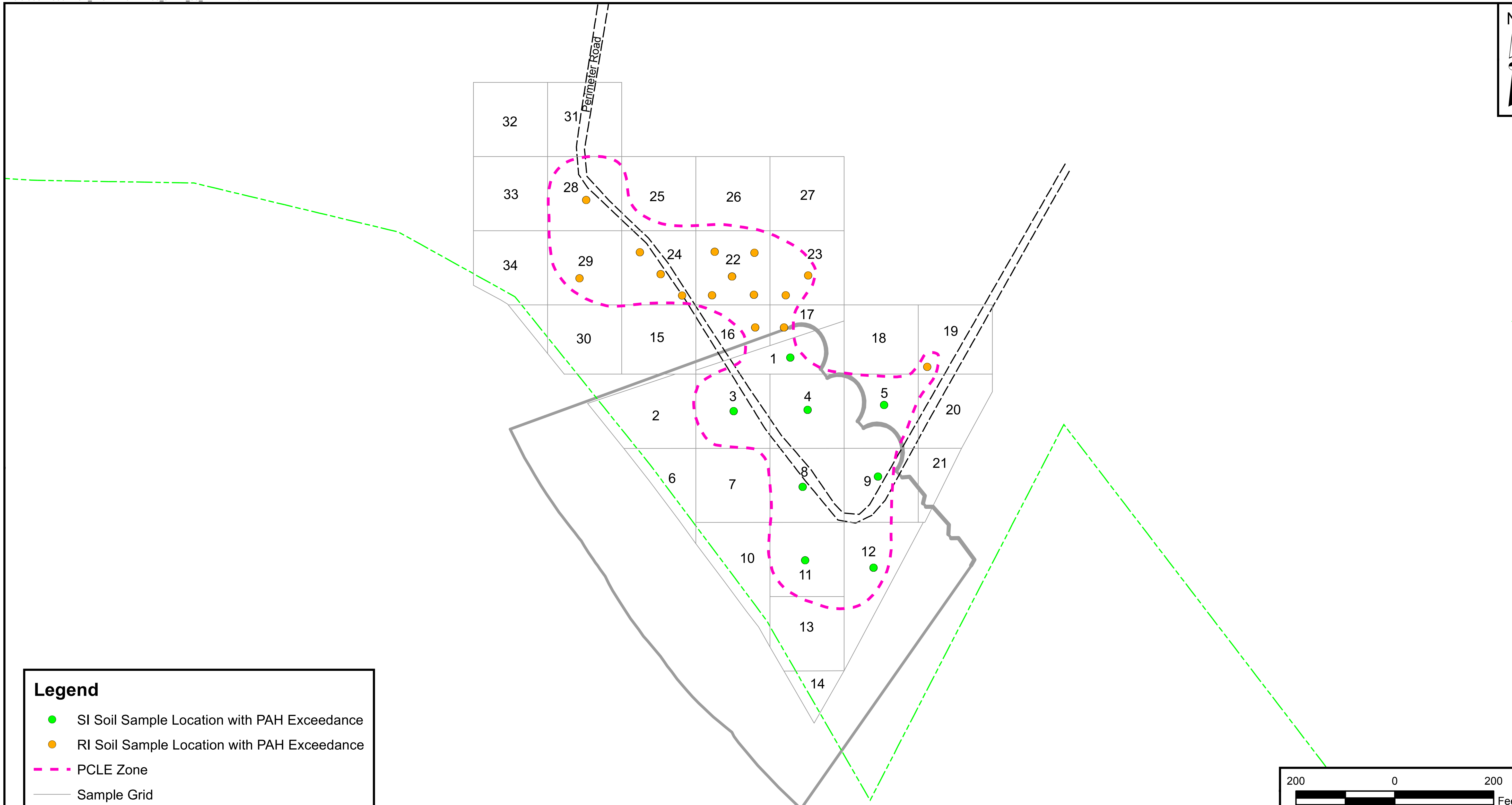
- No COPCs were retained for potential risks to plants, soil invertebrates, birds, and mammals.

10.2.4 Recommendations - SERA

- No further action is recommended for Ecological receptors at the Skeet Range.

P:\GIS\COURPUSCHRISTI_NAS\MXD\INCINERATOR_SS_METALS.MXD 3/15/13 KM





DRAWN BY	DATE	APPROXIMATE PAH EXCEEDANCE EXTENT SKEET RANGE SITE NALF CABANISS CORPUS CHRISTI, TEXAS	CONTRACT NUMBER CTO 0135
K. MOORE	1/20/12		APPROVED BY / DATE
CHECKED BY	DATE		APPROVED BY / DATE
F. GROSSKOPF	3/15/13		FIGURE NO. 10-2
COST/SCHEDULE-AREA			REV 1
SCALE AS NOTED			

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Comprehensive **L**ong-term **E**nvironmental **A**ction **N**avy

CONTRACT NUMBER N62467-04-D-0055

Rev. 1
July 2013

Final

Remedial Investigation Report
Volume 2 of 2
Appendices A-K
Incinerator Disposal Site and Former Skeet Range

Naval Auxiliary Landing Field Cabaniss
Corpus Christi, Texas

Contract Task Order 0135

July 2013

NAVFAC
Naval Facilities Engineering Command
NAVFAC SOUTHEAST
NAS Jacksonville
Jacksonville, Florida 32212-0030

TETRA TECH

APPENDIX A

SUMMARY OF XRF FIELD RESULTS, BORING LOGS AND MONITOR WELL COMPLETION DETAILS

SUMMARY OF XRF FIELD RESULTS

INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Sample Location	Depth (feet bgs)	Composite Sample Identification	Site	Subsample Identification	XRF Lead Values (mg/kg)			Composite XRF Lead Values (mg/kg)			Maximum Composite XRF Lead Value (mg/kg)	Average Composite XRF Lead Value (mg/kg)	Laboratory Lead Analytical Result (mg/kg)
SI SURFACE SOILS													
1	0 - 0.5	ID-SS01	Site 2	ID-SS01-1	61	54	57	54	44	67	67	55.0	42.5
				ID-SS01-2	55	103	51						
				ID-SS01-3	69	89	78						
				ID-SS01-4	83	57	62						
				ID-SS01-5	52	75	128						
				ID-SS01-6	85	80	64						
				ID-SS01-7	41	96	45						
1A	0 - 0.5	ID-SS01A		ID-SS01A-1	64	60	68	53	49	53	53	51.7	39.3
				ID-SS01A-2	26	29	28						
				ID-SS01A-3	50	38	37						
				ID-SS01A-4	73	40	56						
				ID-SS01A-5	46	47	58						
				ID-SS01A-6	56	61	51						
				ID-SS01A-7	25	18	23						
1B	0 - 0.5	ID-SS01B		ID-SS01B-1	72	88	75	54	68	60	68	60.7	52.7
				ID-SS01B-2	75	85	71						
				ID-SS01B-3	76	78	56						
				ID-SS01B-4	68	80	78						
				ID-SS01B-5	83	72	75						
				ID-SS01B-6	73	76	77						
				ID-SS01B-7	77	61	69						
1C	0 - 0.5	ID-SS01C		ID-SS01C-1	51	35	40	76	54	61	76	63.7	34.9
				ID-SS01C-2	60	54	43						
				ID-SS01C-3	44	43	43						
				ID-SS01C-4	38	42	26						
				ID-SS01C-5	40	41	51						
				ID-SS01C-6	55	56	53						
				ID-SS01C-7	78	80	85						
1D	0 - 0.5	ID-SS01D		ID-SS01D-1	22	20	16	27	21	23	27	23.7	17.9
				ID-SS01D-2	22	26	38						
				ID-SS01D-3	36	26	34						
				ID-SS01D-4	40	41	40						
				ID-SS01D-5	25	28	15						
				ID-SS01D-6	27	19	26						
				ID-SS01D-7	22	23	19						
2	0 - 0.5	ID-SS02	T2-1	ID-SS02-1	28	40	32	31	32	27	32	30.0	17.1
				ID-SS02-2	33	34	25						
				ID-SS02-3	25	35	25						
				ID-SS02-4	17	36	24						
				ID-SS02-5	22	30	30						
				ID-SS02-6	16	23	40						
				ID-SS02-7	22	21	21						

SUMMARY OF XRF FIELD RESULTS

INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Sample Location	Depth (feet bgs)	Composite Sample Identification	Site	Subsample Identification	XRF Lead Values (mg/kg)			Composite XRF Lead Values (mg/kg)			Maximum Composite XRF Lead Value (mg/kg)	Average Composite XRF Lead Value (mg/kg)	Laboratory Lead Analytical Result (mg/kg)
3	0 - 0.5	ID-SS03	T3-1,2,3	ID-SS03-1	41	51	51	35	47	57	57	46.3	21.4
				ID-SS03-2	31	37	43						
				ID-SS03-3	38	47	50						
				ID-SS03-4	34	46	36						
				ID-SS03-5	34	36	30						
				ID-SS03-6	79	84	81						
				ID-SS03-7	56	63	59						
3A	0 - 0.5	ID-SS03A		ID-SS03A-1	27	39	38	28	30	36	36	31.3	20.5
				ID-SS03A-3	30	37	31						
				ID-SS03A-3	26	32	25						
				ID-SS03A-4	51	34	43						
				ID-SS03A-5	22	26	28						
				ID-SS03A-6	27	227	198						
				ID-SS03A-7	23	29	26						
3B	0 - 0.5	ID-SS03B		ID-SS03B-1	146	151	146	166	178	310	310	218.0	253
				ID-SS03B-3	103	94	103						
				ID-SS03B-3	378	343	279						
				ID-SS03B-4	508	300	331						
				ID-SS03B-5	331	276	333						
				ID-SS03B-6	64	85	77						
				ID-SS03B-7	71	77	74						
3C	0 - 0.5	ID-SS03C		ID-SS03C-1	59	44	75	69	64	100	100	77.7	29.2
				ID-SS03C-2	82	79	89						
				ID-SS03C-3	61	73	77						
				ID-SS03C-4	66	50	53						
				ID-SS03C-5	55	50	56						
				ID-SS03C-6	51	45	40						
				ID-SS03C-7	91	89	91						
3D	0 - 0.5	ID-SS03D		ID-SS03D-1	32	32	34	30	37	35	37	34.0	20.1
				ID-SS03D-3	24	32	40						
				ID-SS03D-3	47	26	37						
				ID-SS03D-4	33	28	36						
				ID-SS03D-5	39	28	33						
				ID-SS03D-6	31	28	32						
				ID-SS03D-7	30	24	27						

SUMMARY OF XRF FIELD RESULTS

INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Sample Location	Depth (feet bgs)	Composite Sample Identification	Site	Subsample Identification	XRF Lead Values (mg/kg)			Composite XRF Lead Values (mg/kg)			Maximum Composite XRF Lead Value (mg/kg)	Average Composite XRF Lead Value (mg/kg)	Laboratory Lead Analytical Result (mg/kg)
4	0 - 0.5	ID-SS04	T3-4	ID-SS04-1	699	624	960	1155	937	1433	1433	1175.0	1980
				ID-SS04-2	2343	1950	2341						
				ID-SS04-3	969	1076	966						
				ID-SS04-4	660	664	617						
				ID-SS04-4	1476	1312	1476						
				ID-SS04-6	1280	1037	1289						
				ID-SS04-7	1770	1771	2932						
4A	0 - 0.5	ID-SS04A		ID-SS04A-1	67	64	75	93	90	185	185	122.7	93.3
				ID-SS04A-2	54	58	56						
				ID-SS04A-3	320	61	68						
				ID-SS04A-4	87	89	66						
				ID-SS04A-4	98	92	103						
				ID-SS04A-6	236	229	174						
				ID-SS04A-7	54	78	49						
4B	0 - 0.5	ID-SS04B		ID-SS04B-1	209	246	269	650	600	523	650	591.0	21.4
				ID-SS04B-2	126	106	116						
				ID-SS04B-3	49	46	58						
				ID-SS04B-4	128	134	115						
				ID-SS04B-4	208	182	219						
				ID-SS04B-6	1236	1349	1576						
				ID-SS04B-7	1812	1877	1718						
4C	0 - 0.5	ID-SS04C		ID-SS04C-1	563	677	865	825	1714	863	1714	1134.0	4320
				ID-SS04C-2	718	755	800						
				ID-SS04C-3	150	144	166						
				ID-SS04C-4	445	361	450						
				ID-SS04C-4	345	425	326						
				ID-SS04C-6	1373	1603	1917						
				ID-SS04C-7	930	887	808						
4D	0 - 0.5	ID-SS04D		ID-SS04D-1	1897	1674	1555	1306	1664	1609	1664	1526.3	1220
				ID-SS04D-2	1840	1993	1606						
				ID-SS04D-3	1325	1253	1437						
				ID-SS04D-4	1296	1372	1018						
				ID-SS04D-4	830	1102	860						
				ID-SS04D-6	2102	2047	1745						
				ID-SS03D-7	610	494	723						

SUMMARY OF XRF FIELD RESULTS

INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Sample Location	Depth (feet bgs)	Composite Sample Identification	Site	Subsample Identification	XRF Lead Values (mg/kg)			Composite XRF Lead Values (mg/kg)			Maximum Composite XRF Lead Value (mg/kg)	Average Composite XRF Lead Value (mg/kg)	Laboratory Lead Analytical Result (mg/kg)
				ID-SS05-1	573	559	486						
				ID-SS05-2	47	48	104						
				ID-SS05-3	39	32	31						
5	0 - 0.5	ID-SS05		ID-SS05-4	33	38	42	51	62	484	484	199.0	877
				ID-SS05-5	42	45	47						
				ID-SS05-6	96	51	94						
				ID-SS05-7	42	34	39						
				ID-SS05A-1	34	24	48						
				ID-SS05A-2	33	41	38						
				ID-SS05A-3	51	38	43						
5A	0 - 0.5	ID-SS05A		ID-SS05A-4	36	39	37	32	47	39	47	39.3	179
				ID-SS05A-5	48	31	29						
				ID-SS05A-6	38	36	56						
				ID-SS05A-7	27	27	26						
				ID-SS05B-1	42	32	35						
				ID-SS05B-2	69	62	58						
				ID-SS05B-3	36	28	38						
5B	0 - 0.5	ID-SS05B	T4-1,2	ID-SS05B-4	36	30	36	43	45	41	45	43.0	450
				ID-SS05B-5	46	60	54						
				ID-SS05B-6	35	34	33						
				ID-SS05B-7	36	32	42						
				ID-SS05C-1	29	32	31						
				ID-SS05C-2	31	82	40						
				ID-SS05C-3	24	18	19						
5C	0 - 0.5	ID-SS05C		ID-SS05C-4	34	37	32	38	47	32	47	39.0	11.1
				ID-SS05C-5	135	53	53						
				ID-SS05C-6	48	46	49						
				ID-SS05C-7	41	36	32						
				ID-SS05D-1	86	67	145						
				ID-SS05D-2	228	88	72						
				ID-SS05D-3	220	247	176						
5D	0 - 0.5	ID-SS05D		ID-SS05D-4	72	50	56	171	109	118	171	132.7	18.5
				ID-SS05D-5	77	67	75						
				ID-SS05D-6	174	147	146						
				ID-SS05D-7	264	287	326						

SUMMARY OF XRF FIELD RESULTS

INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Sample Location	Depth (feet bgs)	Composite Sample Identification	Site	Subsample Identification	XRF Lead Values (mg/kg)			Composite XRF Lead Values (mg/kg)			Maximum Composite XRF Lead Value (mg/kg)	Average Composite XRF Lead Value (mg/kg)	Laboratory Lead Analytical Result (mg/kg)
				ID-SS06-1	75	78	77						
				ID-SS06-2	41	46	48						
				ID-SS06-3	24	37	32						
6	0 - 0.5	ID-SS06		ID-SS06-4	38	34	35	75	70	78	78	74.3	45.5
				ID-SS06-5	87	113	79						
				ID-SS06-6	106	173	121						
				ID-SS06-7	475	242	238						
				ID-SS06A-1	20	26	29						
				ID-SS06A-2	44	34	32						
				ID-SS06A-3	28	31	23						
6A	0 - 0.5	ID-SS06A		ID-SS06A-4	75	35	28	28	34	35	35	32.3	21.6
				ID-SS06A-5	30	19	29						
				ID-SS06A-6	36	88	30						
				ID-SS06A-7	29	20	22						
				ID-SS06B-1	33	45	80						
				ID-SS06B-2	60	59	57						
				ID-SS06B-3	45	36	36						
6B	0 - 0.5	ID-SS06B	T6-1	ID-SS06B-4	14	17	23	58	28	60	60	48.7	21.1
				ID-SS06B-5	36	35	36						
				ID-SS06B-6	39	35	32						
				ID-SS06B-7	40	38	30						
				ID-SS06C-1	53	79	56						
				ID-SS06C-2	28	44	39						
				ID-SS06C-3	84	79	77						
6C	0 - 0.5	ID-SS06C		ID-SS06C-4	52	52	52	49	42	48	49	46.3	100
				ID-SS06C-5	32	32	36						
				ID-SS06C-6	56	60	62						
				ID-SS06C-7	47	55	88						
				ID-SS06D-1	27	17	24						
				ID-SS06D-2	19	25	27						
				ID-SS06D-3	22	24	21						
6D	0 - 0.5	ID-SS06D		ID-SS06D-4	26	30	38	26	25		26	25.5	25.3
				ID-SS06D-5	24	22	25						
				ID-SS06D-6	24	29	54						
				ID-SS03D-7	24	29	18						

SUMMARY OF XRF FIELD RESULTS

INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Sample Location	Depth (feet bgs)	Composite Sample Identification	Site	Subsample Identification	XRF Lead Values (mg/kg)			Composite XRF Lead Values (mg/kg)			Maximum Composite XRF Lead Value (mg/kg)	Average Composite XRF Lead Value (mg/kg)	Laboratory Lead Analytical Result (mg/kg)
7	0 - 0.5	ID-SS07	Boiler	ID-SS07-1	5677	5437	5177	2486	2537	2276	2537	2433.0	534
				ID-SS07-2	1307	1196	1159						
				ID-SS07-3	840	769	719						
				ID-SS07-4	2432	2466	2270						
				ID-SS07-5	2645	3145	4452						
				ID-SS07-6	1896	2109	2115						
				ID-SS07-7	1331	1449	1651						
7A	0 - 0.5	ID-SS07A		ID-SS07A-1	490	469	514	446	372	411	446	409.7	803
				ID-SS07A-2	399	466	383						
				ID-SS07A-3	437	401	364						
				ID-SS07A-4	487	525	511						
				ID-SS07A-5	525	720	482						
				ID-SS07A-6	245	236	209						
				ID-SS07A-7	114	110	104						
7B	0 - 0.5	ID-SS07B		ID-SS07B-1	644	601	610	790	808	366	808	654.7	4570
				ID-SS07B-2	1727	724	772						
				ID-SS07B-3	882	521	547						
				ID-SS07B-4	229	206	235						
				ID-SS07B-5	170	191	270						
				ID-SS07B-6	325	276	320						
				ID-SS07B-7	1196	1079	908						
7C	0 - 0.5	ID-SS07C		ID-SS07C-1	89	102	112	155	161	187	187	167.7	159
				ID-SS07C-2	47	104	246						
				ID-SS07C-3	229	258	279						
				ID-SS07C-4	357	362	379						
				ID-SS07C-5	253	228	239						
				ID-SS07C-6	126	109	114						
				ID-SS07C-7	91	105	90						
7D	0 - 0.5	ID-SS07D		ID-SS07D-1	488	382	430	339	369	306	369	338.0	34.9
				ID-SS07D-2	366	376	356						
				ID-SS07D-3	186	243	180						
				ID-SS07D-4	320	381	359						
				ID-SS07D-5	564	552	506						
				ID-SS07D-6	391	396	486						
				ID-SS03D-7	360	369	411						

SUMMARY OF XRF FIELD RESULTS

INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Sample Location	Depth (feet bgs)	Composite Sample Identification	Site	Subsample Identification	XRF Lead Values (mg/kg)			Composite XRF Lead Values (mg/kg)			Maximum Composite XRF Lead Value (mg/kg)	Average Composite XRF Lead Value (mg/kg)	Laboratory Lead Analytical Result (mg/kg)
8	0 - 0.5	ID-SS08	T2-2	ID-SS08-1	28	37	25	31	25	24	31	26.7	43.6
				ID-SS08-2	32	34	25						
				ID-SS08-3	27	21	21						
				ID-SS08-4	23	29	27						
				ID-SS08-5	26	23	21						
				ID-SS08-6	25	24	27						
				ID-SS08-7	22	33	25						
9	0 - 0.5	ID-SS09	T3-8	ID-SS09-1	26	16	16	19	19	20	20	19.3	35.7
				ID-SS09-2	18	23	21						
				ID-SS09-3	27	19	36						
				ID-SS09-4	14	26	19						
				ID-SS09-5	16	12	12						
				ID-SS09-6	17	14	18						
				ID-SS09-7	24	25	32						
10	0 - 0.5	ID-SS10	T4-3	ID-SS10-1	25	26	21	51	36	37	51	41.3	188
				ID-SS10-2	52	62	50						
				ID-SS10-3	35	40	42						
				ID-SS10-4	26	31	40						
				ID-SS10-5	29	22	18						
				ID-SS10-6	22	32	29						
				ID-SS10-7	88	82	96						
11	0 - 0.5	ID-SS11	T5-1	ID-SS11-1	30	17	25	23	22	21	23	22.0	83.1
				ID-SS11-2	23	24	21						
				ID-SS11-3	27	32	26						
				ID-SS11-4	16	22	20						
				ID-SS11-5	22	17	23						
				ID-SS11-6	22	<11	18						
				ID-SS11-7	25	18	27						
12	0 - 0.5	ID-SS12	T5-2	ID-SS12-1	25	31	28	18	29	25	29	24.0	20.2
				ID-SS12-2	<10	14	25						
				ID-SS12-3	25	24	29						
				ID-SS12-4	16	28	25						
				ID-SS12-5	26	45	29						
				ID-SS12-6	20	22	23						
				ID-SS12-7	25	23	30						

SUMMARY OF XRF FIELD RESULTS

INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Sample Location	Depth (feet bgs)	Composite Sample Identification	Site	Subsample Identification	XRF Lead Values (mg/kg)			Composite XRF Lead Values (mg/kg)			Maximum Composite XRF Lead Value (mg/kg)	Average Composite XRF Lead Value (mg/kg)	Laboratory Lead Analytical Result (mg/kg)
13	0 - 0.5	ID-SS13	T9-1	ID-SS13-1	102	94	106	66	104	89	104	86.3	31.4
				ID-SS13-2	95	98	133						
				ID-SS13-3	92	77	95						
				ID-SS13-4	38	36	33						
				ID-SS13-5	97	87	91						
				ID-SS13-6	98	96	98						
				ID-SS13-7	98	101	98						
BG-ID-1	0 - 0.5	BG-ID-SS01	T-10	BG-ID-SS01-1	25	22	46	32	37	28	37	32.3	39.7
				BG-ID-SS01-2	28	27	22						
				BG-ID-SS01-3	24	22	33						
				BG-ID-SS01-4	20	23	22						
				BG-ID-SS01-5	33	27	22						
				BG-ID-SS01-6	32	26	34						
				BG-ID-SS01-7	24	30	21						
BG-ID-2	0 - 0.5	BG-ID-SS02	T-10	BG-ID-SS02-1	47	47	50	84	83	62	84	76.3	91.9
				BG-ID-SS02-2	75	98	81						
				BG-ID-SS02-3	143	185	136						
				BG-ID-SS02-4	103	91	103						
				BG-ID-SS02-5	69	79	72						
				BG-ID-SS02-6	33	28	23						
				BG-ID-SS02-7	77	92	83						
BG-ID-3	0 - 0.5	BG-ID-SS03	T-11	BG-ID-SS03-1	72	69	72	81	70	75	81	75.3	72.2
				BG-ID-SS03-2	60	70	77						
				BG-ID-SS03-3	52	52	136						
				BG-ID-SS03-4	50	57	53						
				BG-ID-SS03-5	72	67	65						
				BG-ID-SS03-6	92	81	88						
				BG-ID-SS03-7	73	79	84						
BG-ID-4	0 - 0.5	BG-ID-SS04	T-11	BG-ID-SS04-1	15	14	15	17	15	19	19	17.0	14.9
				BG-ID-SS04-2	22	126	19						
				BG-ID-SS04-3	16	13	18						
				BG-ID-SS04-4	28	12	26						
				BG-ID-SS04-5	20	11	21						
				BG-ID-SS04-6	17	18	19						
				BG-ID-SS04-7	15	19	26						

SUMMARY OF XRF FIELD RESULTS

INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Sample Location	Depth (feet bgs)	Composite Sample Identification	Site	Subsample Identification	XRF Lead Values (mg/kg)			Composite XRF Lead Values (mg/kg)			Maximum Composite XRF Lead Value (mg/kg)	Average Composite XRF Lead Value (mg/kg)	Laboratory Lead Analytical Result (mg/kg)
BG-ID-5	0 - 0.5	BG-ID-SS05	T-12	BG-ID-SS05-1	18	26	15	<11	12	18	18	15.0	14.4
				BG-ID-SS05-2	20	26	19						
				BG-ID-SS05-3	20	15	22						
				BG-ID-SS05-4	23	<`12	19						
				BG-ID-SS05-5	16	16	19						
				BG-ID-SS05-6	17	18	21						
				BG-ID-SS05-7	21	14	126						
BG-ID-6	0 - 0.5	BG-ID-SS06	T-12	BG-ID-SS06-1	25	15	27	13	16	19	19	16.0	18.5
				BG-ID-SS06-2	18	23	20						
				BG-ID-SS06-3	23	19	22						
				BG-ID-SS06-4	21	24	14						
				BG-ID-SS06-5	23	25	25						
				BG-ID-SS06-6	21	17	20						
				BG-ID-SS06-7	28	20	23						
BG-ID-7	0 - 0.5	BG-ID-SS07	T-13	BG-ID-SS07-1	<11	<11	20	<10	18	13	18	15.5	15.9
				BG-ID-SS07-2	14	21	21						
				BG-ID-SS07-3	12	<11	<11						
				BG-ID-SS07-4	19	<11	15						
				BG-ID-SS07-5	16	19	16						
				BG-ID-SS07-6	<11	<11	16						
				BG-ID-SS07-7	14	17	13						
BG-ID-8	0 - 0.5	BG-ID-SS08	T-13	BG-ID-SS08-1	25	15	27	16	19	18	19	17.7	11.7
				BG-ID-SS08-2	18	23	20						
				BG-ID-SS08-3	23	19	22						
				BG-ID-SS08-4	21	24	14						
				BG-ID-SS08-5	23	25	25						
				BG-ID-SS08-6	21	17	20						
				BG-ID-SS08-7	28	20	23						
BG-ID-9	0 - 0.5	BG-ID-SS09	T-14	BG-ID-SS09-1	24	25	26	21	26	20	26	22.3	14.9
				BG-ID-SS09-2	15	18	28						
				BG-ID-SS09-3	23	24	20						
				BG-ID-SS09-4	18	21	25						
				BG-ID-SS09-5	26	27	23						
				BG-ID-SS09-6	16	18	21						
				BG-ID-SS09-7	14	25	21						
BG-ID-10	0 - 0.5	BG-ID-SS10	T-15	BG-ID-SS10-1	17	25	21	16	13	26	26	18.3	13
				BG-ID-SS10-2	22	23	21						
				BG-ID-SS10-3	24	19	21						
				BG-ID-SS10-4	11	19	22						
				BG-ID-SS10-5	16	13	13						
				BG-ID-SS10-6	16	18	15						
				BG-ID-SS10-7	21	12	16						

SUMMARY OF XRF FIELD RESULTS

INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Sample Location	Depth (feet bgs)	Composite Sample Identification	Site	Subsample Identification	XRF Lead Values (mg/kg)			Composite XRF Lead Values (mg/kg)			Maximum Composite XRF Lead Value (mg/kg)	Average Composite XRF Lead Value (mg/kg)	Laboratory Lead Analytical Result (mg/kg)
RI SURFACE SOILS													
IDSS 001	0 - 0.5	IDSS 001	IDSS 0010001	NA	NA	NA	NA	19	25	21	25.0	21.7	20.9
IDSS 002	0 - 0.5	IDSS 002	IDSS 0020001	NA	NA	NA	NA	12	16	20	20.0	16.0	14.1
IDSS 003	0 - 0.5	IDSS 003	IDSS 0030001	NA	NA	NA	NA	ND	ND	ND	0.0	NA	13.6
IDSS 004	0 - 0.5	IDSS 004	IDSS 0040001	NA	NA	NA	NA	17	30	ND	30.0	23.5	16.1 J
IDSS 005	0 - 0.5	IDSS 005	IDSS 0050001	NA	NA	NA	NA	18	25	15	25.0	19.3	17.7
IDSS 005A	0 - 0.5	IDSS 005A	IDSS 005A0001	NA	NA	NA	NA	ND	20	16	20.0	18.0	18.9
IDSS 005B	0 - 0.5	IDSS 005B	IDSS 005B0001	NA	NA	NA	NA	16	15	15	16.0	15.3	19.1
IDSS 005C	0 - 0.5	IDSS 005C	IDSS 005C0001	NA	NA	NA	NA	20	ND	ND	20.0	20.0	16.3
IDSS 005D	0 - 0.5	IDSS 005D	IDSS 005D0001	NA	NA	NA	NA	ND	15	22	22.0	18.5	17.2
IDSS 005E	0 - 0.5	IDSS 005E	IDSS 005E0001	NA	NA	NA	NA	18	22	19	22.0	19.7	17.7
IDSS 006	0 - 0.5	IDSS 006	IDSS 0060001	NA	NA	NA	NA	15	16	20	20.0	17.0	18.7
IDSS 007	0 - 0.5	IDSS 007	IDSS 0070001	NA	NA	NA	NA	15	13	15	15.0	14.3	14.6
IDSS 008	0 - 0.5	IDSS 008	IDSS 0080001	NA	NA	NA	NA	23	20	31	31.0	24.7	14.6
IDSS 009	0 - 0.5	IDSS 009	IDSS 0090001	NA	NA	NA	NA	15	ND	16	16.0	15.5	19.7 J
IDSS 010	0 - 0.5	IDSS 010	IDSS 0100001	NA	NA	NA	NA	15	17	15	17.0	15.7	16.3
RI SUBSURFACE SOILS													
IDSB 001	0 - 0.5	IDSB 001	IDSB0010507	NA	NA	NA	NA	10	8	ND	10.0	9.0	13.4 J
IDSB 001	0 - 0.5	IDSB 001	IDSB0011214	NA	NA	NA	NA	8	10	ND	10.0	9.0	4.1 J
IDSB 002	0 - 0.5	IDSB 002	IDSB0020507	NA	NA	NA	NA	ND	11	9	11.0	10.0	11.5
IDSB 002	0 - 0.5	IDSB 002	IDSB0020810	NA	NA	NA	NA	ND	ND	9	9.0	9.0	5.6 J
IDSB 003	0 - 0.5	IDSB 003	IDSB0030203	NA	NA	NA	NA	ND	ND	9	9.0	9.0	3.2 J
IDSB 003	0 - 0.5	IDSB 003	IDSB0030508	NA	NA	NA	NA	ND	ND	ND	NA	NA	2.9 J

J - estimated result

Tetra Tech NUS, Inc.
Houston, Texas

BOREHOLE No.: SRMW01

NORTHING: **17141814.09**
EASTING: **1330413.07**
GROUND ELEVATION: **19.62**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**NALF CABANISS**	DRILLING CO.:	**Gainco**
SITE LOCATION:	**Corpus Christi, TX**	DRILLER:	**Stas Grover**
JOB NO.:	**112G01821**	RIG TYPE:	**GeoProbe 7720DT/ Mobile B-61**
LOGGED BY:	**F. Grosskopf/L. Basilio**	METHOD OF DRILLING:	**DPT/HSA**
PROJECT MANAGER:	**Ken Grim**	SAMPLING METHODS:	**Macrocore sample**
DATE DRILLED:	**09/21/11**	TOTAL DEPTH:	**30 feet bgs**

NOTES: Boring logs should not be used separate from report.

Initial Water Level — Static Water Level

Water level measured 09/24/11

DEPTH (FEET)	USCS: SOIL DESCRIPTION	SAMPLE NUMBER/ INTERVAL	RECOVER/ ADVANCE (inches)	PID (ppm)	WELL DESCRIPTION
0	TOPSOIL: Topsoil black				Temporary completion Plugged and Abandoned 9/24/11
	CLAY: (CL) Gray/black, hard, dry, silty	SRSB001 0203		NA	
-5	CLAY: (CL) Gray, very stiff, slightly plastic, slightly silty, caliche towards base	SRSB001 0507	40/60		2" PVC riser from surface to 20 ft Bentonite seal from 0 ft to 18 ft
-10	CLAY: (CL) Tan, stiff, moderately plastic, trace caliche	SRSB001 1012	48/60		
-15	CLAY: (CL) Gray/Tan, sandy with dry sand stringers		60/60		
	SAND: (SM) Tan, fine grained, silty, moist to wet				
	CLAY: (CL) Gray/Tan, sandy				
-20	SAND: (SM) Tan, fine grained, silty, moist to wet		60/60		20-40 sand filter pack from 18 ft to 30 ft
	CLAY: (CL) Gray, stiff, sandy				
-25	SAND: (SM) Tan, fine grained, silty to clayey, moist to wet		60/60		2" PVC 0.010" slotted screen from 20 ft to 30 ft
	CLAY: (CL) brown, hard, silghtly plastic, stiff, silty dry to moist				
-30	Total Depth = 30 feet below ground surface		60/60		Bottom Cap

Tetra Tech NUS, Inc.
Houston, Texas

BOREHOLE No.: SRMW02

NORTHING: **17141976.39**
EASTING: **1330287.81**
GROUND ELEVATION: **19.72**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	NALF CABANISS	DRILLING CO.:	Gainco
SITE LOCATION:	Corpus Christi, TX	DRILLER:	Stas Grover
JOB NO.:	112G01821	RIG TYPE:	GeoProbe 7720DT/ Mobile B-61
LOGGED BY:	F. Grosskopf/L. Basilio	METHOD OF DRILLING:	DPT/HSA
PROJECT MANAGER:	Ken Grim	SAMPLING METHODS:	Macrocore sample
DATE DRILLED:	09/20/11 to 09/21/11	TOTAL DEPTH:	40 feet bgs

NOTES: Boring logs should not be used separate from report.

Initial Water Level — Static Water Level

Water level measured 09/24/11

DEPTH (FEET)	USCS: SOIL DESCRIPTION
0	TOPSOIL: Topsoil black
	CLAY: (CL) Gray/black, stiff, dry, some caliche
-5	CLAY: (CL) Gray/black, stiff, silty, sandy
	CLAY: (CL) Gray, stiff, slightly plastic, slightly silty, some caliche
-10	CLAY: (CL) Tan, stiff, moderately plastic, trace caliche,some iron nodules at bottom
-15	SAND: (SM) Tan, fine grained, silty
	CLAY: (CL) Gray/Tan
	SAND: (SM) Tan, fine grained, silty, damp
-20	CLAY: (CL) Tan, stiff, sandy
	SILT: (ML) Tan, clayey
-25	CLAY: (CL) Tan, hard, moderately plastic, stiff
	SAND: (SM) tan, very fine grained, clayey
	CLAY: (CL) Tan, stiff, little plasticity
-30	
	SAND: (SM) tan, fine grained to very fine grained, wet
-35	CLAY: (CL) Tan, stiff, little plasticity
	SAND: (SM) Tan, fine grained to very fine grained, wet
-40	CLAY: (CL) Tan, stiff, little plasticity
	Total Depth = 40 feet below ground surface

SAMPLE NUMBER/ INTERVAL	RECOVER/ ADVANCE (inches)	PID (ppm)
SRSB002 0203		NA
SRSB002 0507	36/60	
SRSB002 1012	60/60	
	60/60	
	60/60	
	60/60	
	60/60	
	30/30	
	30/30	
	30/30	
	18/30	

WELL DESCRIPTION

Temporary completion Plugged and Abandonded 9/24/11

2" PVC riser from surface to 30 ft

Bentonite seal from 0 ft to 28 ft

20-40 sand filter pack from 28 ft to 40 ft

2" PVC 0.010" slotted screen from 30 ft to 40 ft

Bottom Cap

Tetra Tech NUS, Inc.
Houston, Texas

BOREHOLE No.: SRMW03

NORTHING: **17141814.09**
EASTING: **1330413.07** GROUND ELEVATION: **18.82**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**NALF CABANISS**	DRILLING CO.:	**Gainco**
SITE LOCATION:	**Corpus Christi, TX**	DRILLER:	**Stas Grover**
JOB NO.:	**112G01821**	RIG TYPE:	**GeoProbe 7720DT/ Mobile B-61**
LOGGED BY:	**F. Grosskopf/L. Basilio**	METHOD OF DRILLING:	**DPT/HSA**
PROJECT MANAGER:	**Ken Grim**	SAMPLING METHODS:	**Macrocore sample**
DATE DRILLED:	**09/21/11**	TOTAL DEPTH:	**29 feet bgs**

NOTES: Boring logs should not be used separate from report.

▽ Initial Water Level ▼ Static Water Level

Water level measured 09/24/11

DEPTH (FEET)	SOIL SYMBOL	USCS: SOIL DESCRIPTION	SAMPLE NUMBER/ INTERVAL	RECOVER/ ADVANCE (inches)	PID (ppm)	WELL DETAIL	WELL DESCRIPTION
0		CLAY: (CL) Gray/black, hard, dry, silty	SRSB003 0102		NA		Temporary completion Plugged and Abandoned 9/24/11
-5		CLAY: (CL) Gray/Tan, very stiff, slightly plastic, slightly silty, caliche towards base, less silty with depth	SRSB003 0507	24/60			2" PVC riser from surface to 19 ft Bentonite seal from 0 ft to 17 ft
-10		CLAY: (CL) Gray/Tan, very stiff, slightly plastic, slightly silty, dry to damp	SRSB003 1012	36/60			
-15		CLAY: (CL) Gray/Tan, very stiff, slightly plastic, slightly silty, dry to damp		60/60			
-20		SAND: (SM) Gray, very fine grained to fine grained, silty, with clay layers		60/60			20-40 sand filter pack from 17 ft to 29 ft
		CLAY: (CL) Gray/Tan, hard					
		SAND: (SM) Gray, fine grained to medium grained, loose, silty, moist to wet		30/30			2" PVC 0.010" slotted screen from 19 ft to 29 ft
-25				30/30			
		CLAY: (CL) Tan/Brown, hard, slightly plastic		48/48			Bottom Cap

Total Depth = 29 feet below ground surface

Tetra Tech NUS, Inc.
Houston, Texas

BOREHOLE No.: IDMW01

NORTHING: **17143091.29**
EASTING: **1328766.25**
GROUND ELEVATION: **16.22**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	NALF CABANISS	DRILLING CO.:	Gainco
SITE LOCATION:	Corpus Christi, TX	DRILLER:	Stas Grover
JOB NO.:	112G01821	RIG TYPE:	GeoProbe 7720DT
LOGGED BY:	F. Grosskopf/L. Basilio	METHOD OF DRILLING:	DPT
PROJECT MANAGER:	Ken Grim	SAMPLING METHODS:	Macrocore sample
DATE DRILLED:	09/20/11	TOTAL DEPTH:	24 feet bgs

NOTES: Boring logs should not be used separate from report.

Initial Water Level   Static Water Level

Water level measured 09/24/11

DEPTH (FEET)	USCS: SOIL DESCRIPTION	SAMPLE NUMBER/ INTERVAL	RECOVER/ ADVANCE (inches)	PID (ppm)	WELL DESCRIPTION
0	TOPSOIL: caliche fragments				Temporary completion Plugged and Abandonded 9/24/11
	CLAY: (CL) Gray/Dark Gray, hard			NA	
-5	CLAY: (CL) Gray, crumbly, with caliche and some iron nodules, tan at bottom	IDSB001 0507	30/60		2" PVC riser from surface to 19 ft
					Bentonite seal from 0 ft to 12 ft
-10	CLAY: (CL) Gray, stiff		60/60		
		IDSB001 1214			
	CLAY: (CL) Gray, stiff, with sand stringers				
-15	SAND: (SM) Tan, very fine grained, silty		60/60		20-40 sand filter pack from 12 ft to 24 ft
-20			60/60		2" PVC 0.010" slotted screen from 14 ft to 24 ft
	CLAY: (CL) Tan, hard, slightly plastic				
	Total Depth = 24 feet below ground surface		60/60		Bottom Cap

Tetra Tech NUS, Inc.
Houston, Texas

BOREHOLE No.: IDMW02

NORTHING: **17143091.29**
EASTING: **1328766.25**
GROUND ELEVATION: **7.25**

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**NALF CABANISS**	DRILLING CO.:	**Gainco**
SITE LOCATION:	**Corpus Christi, TX**	DRILLER:	**Stas Grover**
JOB NO.:	**112G01821**	RIG TYPE:	**GeoProbe 7720DT**
LOGGED BY:	**F. Grosskopf/L. Basilio**	METHOD OF DRILLING:	**DPT**
PROJECT MANAGER:	**Ken Grim**	SAMPLING METHODS:	**Macrocore sample**
DATE DRILLED:	**09/20/11**	TOTAL DEPTH:	**20 feet bgs**

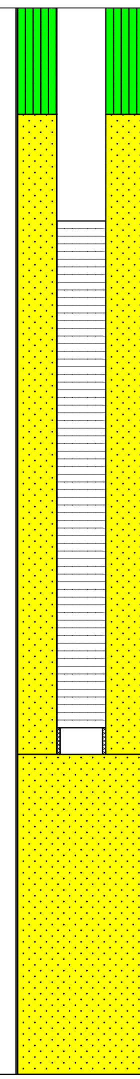
NOTES: Boring logs should not be used separate from report.

Initial Water Level   Static Water Level

Water level measured 09/24/11

DEPTH (FEET)	USCS: SOIL DESCRIPTION	SAMPLE NUMBER/ INTERVAL	RECOVER/ ADVANCE (inches)	PID (ppm)	WELL DESCRIPTION
0	TOPSOIL: Topsoil with caliche fragments				Temporary completion Plugged and Abandonded 9/24/11
	CLAY: (CL) Gray, stiff, plastic clay		24/24	NA	
	CLAY: (CL) Gray, soft plastic with weathered caliche				Bentonite seal from 0 ft to 2 ft 2" PVC riser from surface to 4 ft
-5	SAND: (SM) Tan, very fine grained, silty	IDSB002 0507	6/36		
	CLAY: (CL) Gray, silty, sandy, less sand at depth	IDSB002 0810			20-40 sand filter pack from 2 ft to 14 ft
-10	SAND: (SM) Tan, very fine grained, silty		60/60		2" PVC 0.010" slotted screen from 4 ft to 14 ft
	CLAY: (CL) Brownish Orange, hard slightly plastic				Bottom Cap
-15	CLAY: (CL) Brownish Orange, hard slightly plastic		60/60		
-20	Total Depth = 20 feet below ground surface		60/60		

WELL DETAIL



Tetra Tech NUS, Inc.
Houston, Texas

BOREHOLE No.: IDMW03

NORTHING: **17142673.73**
EASTING: **1329114.05**
GROUND ELEVATION: **6.42**

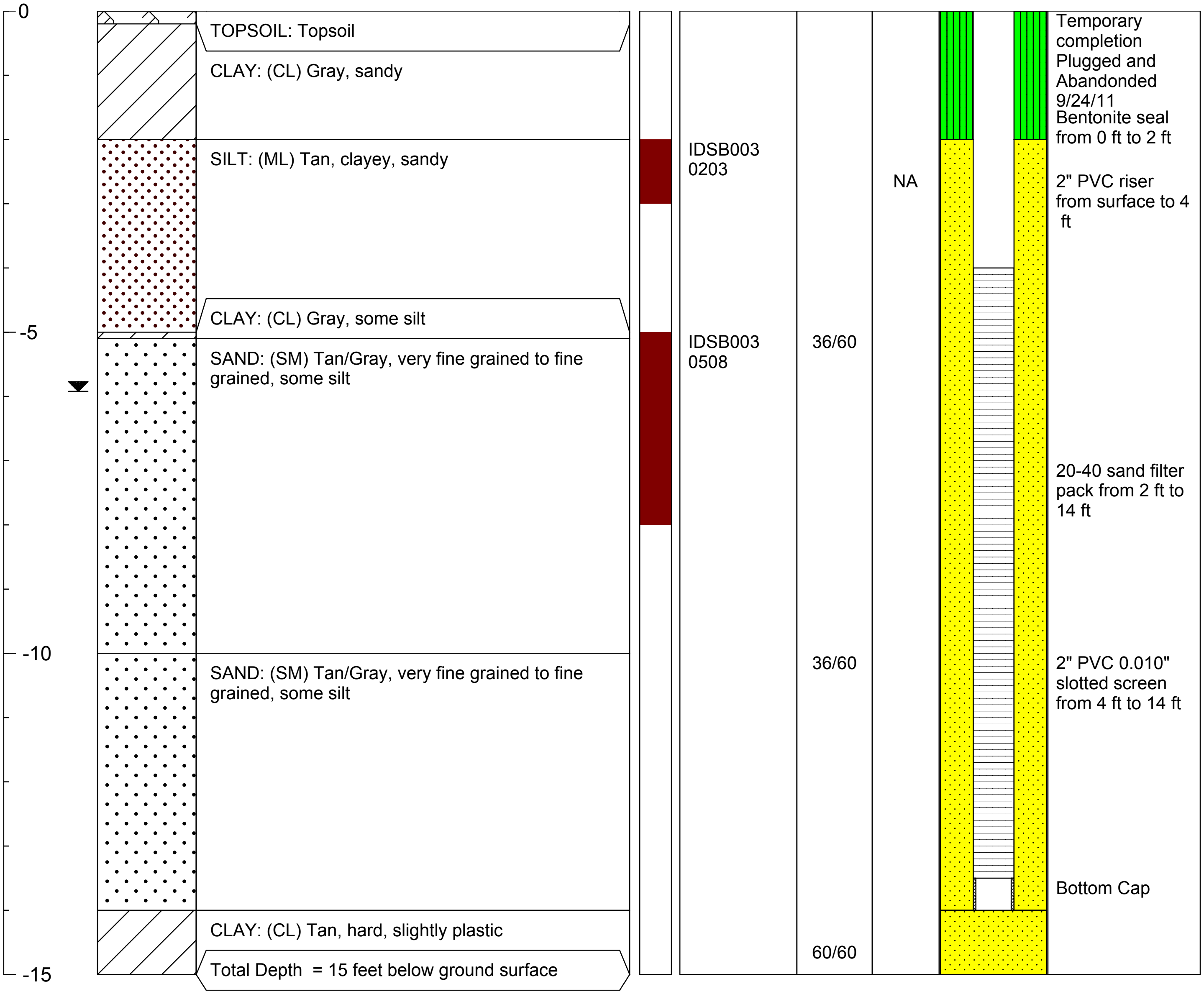
PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**NALF CABANISS**	DRILLING CO.:	**Gainco**
SITE LOCATION:	**Corpus Christi, TX**	DRILLER:	**Stas Grover**
JOB NO.:	**112G01821**	RIG TYPE:	**GeoProbe 7720DT**
LOGGED BY:	**F. Grosskopf/L. Basilio**	METHOD OF DRILLING:	**DPT**
PROJECT MANAGER:	**Ken Grim**	SAMPLING METHODS:	**Macrocore sample**
DATE DRILLED:	**09/20/11**	TOTAL DEPTH:	**15 feet bgs**

NOTES: Boring logs should not be used separate from report.

Initial Water Level   Static Water Level

Water level measured 09/24/11

DEPTH (FEET)	SOIL SYMBOL	USCS: SOIL DESCRIPTION	SAMPLE NUMBER/ INTERVAL	RECOVER/ ADVANCE (inches)	PID (ppm)	WELL DETAIL	WELL DESCRIPTION
0		TOPSOIL: Topsoil					Temporary completion Plugged and Abandonded 9/24/11
		CLAY: (CL) Gray, sandy					Bentonite seal from 0 ft to 2 ft
		SILT: (ML) Tan, clayey, sandy	IDSB003 0203		NA		2" PVC riser from surface to 4 ft
		CLAY: (CL) Gray, some silt					
-5		SAND: (SM) Tan/Gray, very fine grained to fine grained, some silt	IDSB003 0508	36/60			20-40 sand filter pack from 2 ft to 14 ft
-10		SAND: (SM) Tan/Gray, very fine grained to fine grained, some silt		36/60			2" PVC 0.010" slotted screen from 4 ft to 14 ft
							Bottom Cap
		CLAY: (CL) Tan, hard, slightly plastic		60/60			
-15		Total Depth = 15 feet below ground surface					



APPENDIX B

WATER WELL RECORDS

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP	Water Well Report™
	Friday, November 18, 2011

CLIENT
TETRA TECH NUS, INC 2901 Wilcrest Drive #405 Houston, TX 77042

SITE
NALF Cabaniss Corpus Christi , TX PO #: 1079114 ES #: 87412 BISMap #: 111811-4499

1601 Rio Grande Suite 500 Austin, Texas 78701
PH 512.478.0059 FAX 512.478.1433 E-mail banks@banksinfo.com

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Water Well Report™

Map of Wells within 0.5 Mile(s)

Site
Well
Cluster
Limited Access Hwy
Primary Highway
Secondary Highway
Roads
Railroad
County
State
Urban Area
Water Bodies

One inch = 0.24 miles

N

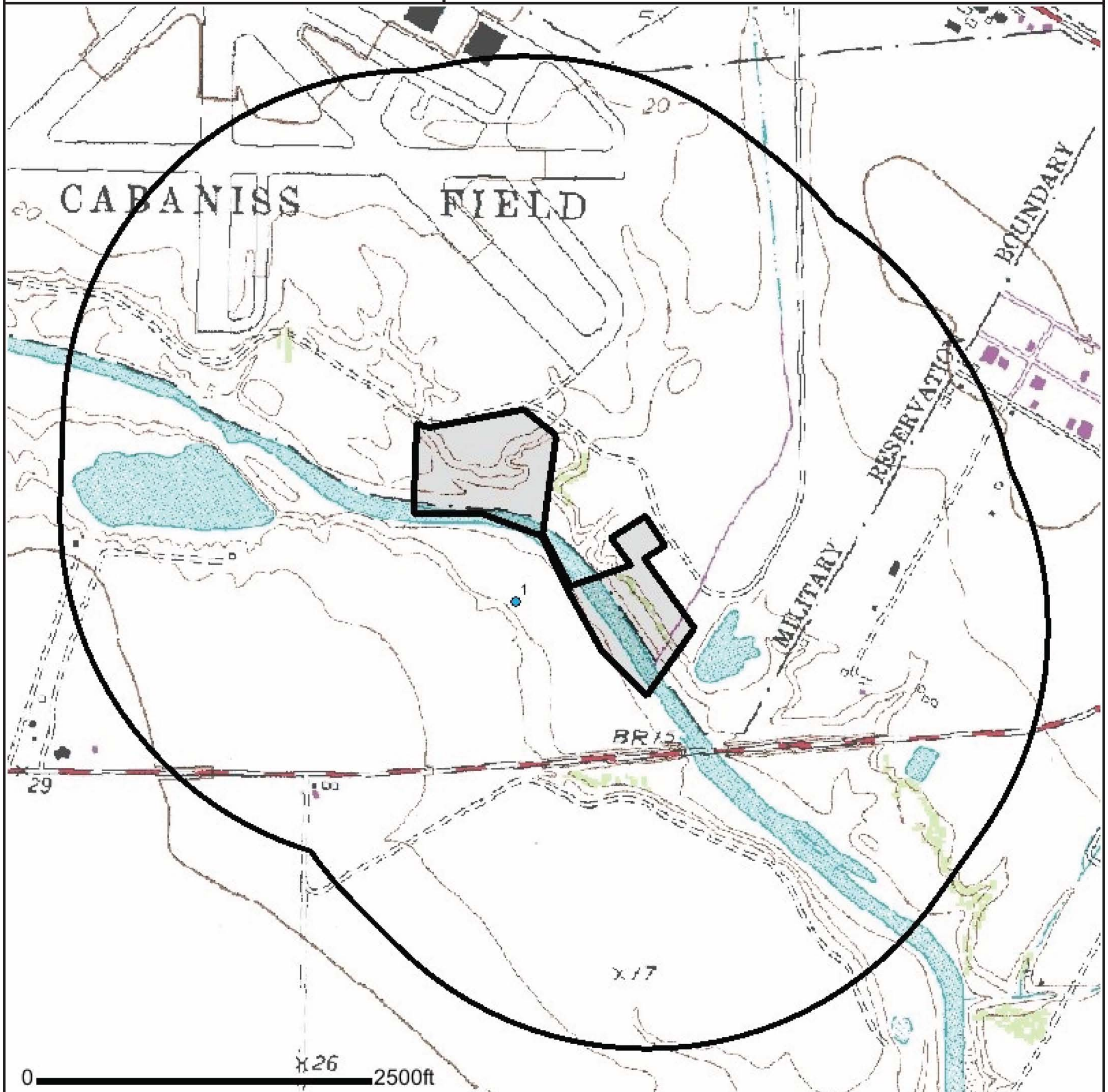
NALF Cabaniss

Banks Environmental Data
1601 Rio Grande Suite 500 Austin, Texas 78701
PH 512-478-0059 FAX 512-478-1433
E-Mail: banks@banksinfo.com

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Water Well Report™
on USGS Topo

Map of Wells within 0.5 Mile(s)



★ Subject Site
Site
Cluster
Existing Road
State Line
County Line
Unimproved Road

One inch = 0.24 miles

NALF Cabaniss

Banks Environmental Data
1601 Rio Grande Suite 500 Austin, Texas 78701
PH 512-478-0059 FAX 512-478-1433
E-Mail: banks@banksinfo.com

N

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Water Well Report™
on 1996 Aerial Photo

Map of Wells within 0.5 Mile(s)

Subject Site
Site
Cluster
Primary Highway
State Line
County Line
Roads & Ramps
Railroad
Limited Access Hwy

One inch = 0.24 miles

N

NALF Cabaniss

Banks Environmental Data
1601 Rio Grande Suite 500 Austin, Texas 78701
PH 512-478-0059   FAX 512-478-1433
E-Mail: banks@banksinfo.com

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Water Well Report™

on 2004 Aerial Photo

Map of Wells within 0.5 Mile(s)

- ★ Subject Site
- Site
- Cluster
- Primary Highway
- State Line
- County Line
- Roads & Ramps
- Railroad
- Limited Access Hwy

One inch = 0.24 miles

NALF Cabaniss

N

Banks Environmental Data
1601 Rio Grande Suite 500 Austin, Texas 78701
PH 512-478-0059 FAX 512-478-1433
E-Mail: banks@banksinfo.com

Water Well Report™

DETAILS

Map #	Source ID	Owner of Well	Type of Well	Depth Drilled	Completion Date	Longitude	Latitude	Driller's Log
1	83-21-5	David Sens	Domestic	205	12/21/2000	-97.43342	27.69177	View

Attention Owner:
Confidentiality Privilege Notice on reverse side of owner's copy.

Texas Department of License and Regulation

Water Well Driller/Pump Installer Program
P.O. Box 12157 Austin, Texas 78711 (512)463-7880 FAX (512)463-8616
Toll free (800)803-9202
Email address: water.well@license.state.tx.us

This form must be completed and filed with the department and owner within 60 days upon completion of the well.

WELL REPORT

A. WELL IDENTIFICATION AND LOCATION DATA

1) OWNER

Name	Address	City	State	Zip
David Sens	Rt. 3, Box 312-D	Corpus Christi	TX	78415

2) WELL LOCATION

County	Physical Address	City	State	Zip
Nueces	Weber Road	Corpus Christi	TX	78415

Lat. | Long. | Grid # 83-21-5

3) Type of Work ☑ New Well ☐ Reconditioning ☐ Replacement ☐ Deepening

4) Proposed Use (check) ☐ Monitor ☐ Environmental Soil Boring ☑ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell ☐ Rig Supply If Public Supply well, were plans submitted? ☐ Yes ☐ No

5) N↑

6) Drilling Date
Started 12/20/00
Completed 12/21/00

Diameter of Hole

Dia.(in)	From (ft)	To (ft)
6 3/4	0	205

7) Drilling Method (check) ☐ Driven ☐ Air Rotary ☑ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☐ Other

From (ft) To (ft)	Description and color of formation material
0-25	Clay
25-28	Sand
28-50	Clay
50-63	Sand
63-95	Clay
95-118	Sand
118-140	Clay
140-171	Broken sand
171-205	Sand

(Use reverse side of Well Owner's copy, If necessary)

8) Borehole Completion ☐ Open Hole ☑ Straight Wall ☐ Under-reamed ☐ Gravel Packed ☐ Other
If Gravel Packed give the interval from ft. to ft.

Casing, Blank Pipe, and Well Screen Data

Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc Screen Mfg., if commercial	Setting (ft) From	To	Gage Casing Screen
4	N	PVC Casing	0	175	
4	N	PVC Screen	175	205	

9) Cementing Data
Cementing from 0 ft. to 130 ft. # of sacks used 12
ft. to ft. # of sacks used
Method Used Pumped
Cementing By Larry Martin
Distance to septic system field or other concentrated contamination N/A ft.
Method of verification of above distance

13) Plugged ☐ Well plugged within 48 hours
Casing left in well: Cement/Bentonite placed in well:

From (ft)	To (ft)	From (ft)	To (ft)	Sacks used

10) Surface Completion
☑ Specified Surface Slab Installed
☐ Specified Surface Sleeve Installed
☐ Pitless Adapter Used
☐ Approved Alternative Procedure Used

14) Type Pump
☐ Turbine ☐ Jet ☑ Submersible ☐ Cylinder
☐ Other
Depth to pump bowls, cylinder, jet etc., 80 ft.

11) Water Level
Static level 5 ft. below land surface Date 12/21/00
Artesian Flow gpm. Date / /

RECEIVED MAY 15 2001 TDLR

15) Water Test
Typetest ☐ Pump ☐ Bailer ☑ Jetted ☐ Estimated
Yield: gpm with ft. drawdown after hrs.

12) Packers

Type	Depth
Rubber	130

16) Water Quality
Did you knowingly penetrate a strata which contain undesirable constituents.
☐ YES ☑ NO If yes, did you submit a REPORT OF UNDESIRABLE WATER
Type of water Depth of Strata
Was a chemical analysis made ☐ Yes ☑ No

Company or individual's Name (type or print)	MARTIN WATER WELLS	Lic. No. 2094W
Address	2151 N. Hwy. 77 Robstown, Texas 78380	State / Zip

Signature Larry Martin (Licensed Driller/Pump Installer) | Date / / | Signature (Apprentice) | Date / /

TDLR FORM b001WWD *White - TDLR* *Yellow - Owner* *Pink - Driller/Pump Installer*

Water Well Report™

DISCLAIMER/DETAILS

Banks Environmental Data, Inc. has performed a thorough and diligent search of all wells recorded with Texas state agencies. All mapped locations are based on information obtained from the originating agency. Although Banks performs quality assurance and quality control on all research projects, we recognize that any inaccuracies of the records and mapped well locations could be traced to the appropriate regulatory authority or driller. Many water well schedules may have never been submitted to the regulatory authority by the driller and, may explain the possible unaccountability of privately drilled wells. Therefore, Banks Environmental Data, Inc. cannot guarantee the accuracy of the data or well locations of those maps and records maintained by the Texas regulatory authorities. Banks Environmental Data, Inc. Water Well Report™ is prepared from existing state water well databases and additional file research conducted at Texas' regulatory authorities. Submission of driller's log records became mandatory in 1985. The state of Texas has processed these records in several different filing systems within two state regulatory authorities. The water well files, records and map locations are maintained by the Texas Commission on Environmental Quality (TCEQ) and the Texas Water Development Board (TWDB). Actual water well site locations of this report are geocoded and geoplotted directly from the drilling records, drilling schedules, and driller's logs and maps submitted by the water well driller and maintained at these two primary water well regulatory authorities. Below is a description of the filing systems accessed for well drilling records.

The Texas Water Development Board (TWDB) maintains two datasets of located water well records:

1) TWDB Groundwater Data GW - A registered water well driller is required by law to send in a report to the State for every well that is drilled. This requirement began in 1966. TWDB GW wells are assigned a State Identification Number unique to that well (ie: 65-03-4 01.) Where exact latitude/longitude data was not provided by the driller, latitude and longitude were assigned that locate the well in the center of a 2 ½-minute grid on a topographic map. Records may also include analytical data.

2) TWDB Submitted Drillers Reports WIID - The Submitted Driller's Report Database is populated from the online Texas Well Report Submission and Retrieval System which is a cooperative Texas Department of Licensing and Regulation (TDLR) and Texas Water Development Board (TWDB) application that registered water-well drillers use to submit their required reports. This system was started 2/5/01 and is optional for the drillers to use. Reports that drillers submit by mail are geoplotted/geocoded by a TWDB staff member. WIID wells are assigned a unique tracking number by the Texas Well Report Submission and Retrieval System. (ie: 972 63, 9416)

The Texas Commission on Environmental Quality (TCEQ) maintains two datasets of water well records. Where TCEQ's datasets are included in the Banks Environmental Data, Inc. Water Well Report, a description and example identifier are listed below.

1) Water Utility Database - This database contains a collection of data from Texas Water Districts, Public Drinking Water Systems and Water and Sewer Utilities who submit information to the TCEQ.

Public Water Systems Database PWS - The Public Water Systems records included in the WUD report are obtained digitally from TCEQ. The PWS database does not contain Drillers Reports or analytical data. The PWS Watersource name is the unique identifier in Banks Reports (StateID- S2200199A, G2200322A). Public water system IDs that begin with 'G' are groundwater wells. PWS IDs that begin with 'S' are surface intakes.

2) TCEQ Central Records - Several different types of Driller's Reports are filed with TCEQ Central Records.

A) Plotted Water Well Reports - Plotted Well logs are filed at TCEQ Central File Room based on county name, and grid number. Water well site locations are documented on the logs by the drillers. The accuracy and location of the Plotted wells are relative to the information provided on the drillers report. (ie: 65-59-1)

From 1991 to the 2001, Texas Well Reports contain a grid location box, where drillers mark an X to indicate where the well is located within the 2.5 minute quadrant. These locations have not been verified by the state.

B) Partially Numbered Well Completion Reports that were provided a State Identification Number by the TWDB that establishes the well location somewhere within a 2.5 minute quadrant of a 7.5 minute quadrangle map. This method was the standard procedure from 1986 through 1991.

Some of the historical well logs have a letter following the grid number. TWDB assigned letters to the correlating grid number to identify these wells (ie: 65-59-1A). In some instances, a single well number can represent more than one well location. This type of mapping and filing procedure ceased in June 1986.

Local Groundwater Conservation Districts/Subsidence Districts maintain separate databases from state agencies. Duplicates groundwater wells are likely between local GCDs/GSDs and TWDB and TCEQ databases.

Where reasonably ascertainable, local GCD/SD data are included in the water well report. For example, in the Harris/Galvest on area the Harris Galveston Subsidence District dataset is included in the report. (ie: HGSD1234) HGSD does not maintain well completion logs.

U.S. Geological Survey (USGS) maintains The National Water Information System (NWIS)Inventory. Banks water well report includes NWIS inventory (ie: USGS1234).

APPENDIX C

ECOLOGICAL SURVEY REPORT

ECOLOGICAL SURVEY OF THE INCINERATOR DISPOSAL SITE AND SKEET RANGE

NAVAL AUXILIARY LANDING FIELD (NALF) CABANISS

CORPUS CHRISTI, TEXAS

1.0 Overview

The ecological survey study area (site) described in this report is approximately 24 acres in size and located on the southern section of the NALF Cabaniss, Corpus Christi, Texas. There are two areas associated with this study; the former incinerator disposal site and skeet range.

NALF Cabaniss encompasses a total of 923 acres and is located on the eastern side of Nueces County, Texas, and lies approximately eight miles west of NASCC. Figure 1 shows the general location of NALF Cabaniss. The installation is immediately bounded on the east by Brezina Road, on the north by Ayers Street and Farm-to-Market (FM) 286, to the west by Saratoga Road, and to the south by Oso Creek, a perennial water body that ultimately flows into Oso Bay. Beyond Oso Creek are agricultural and industrial properties. The area east of the installation is comprised of mixed agricultural, industrial, and residential areas. North of the current boundary are former buildings and recreational areas that were once a part of the installation. These areas were transferred to the General Services Administration (GSA) for disposal in 1958, and are now the property of the local school district. Residential zones lie beyond these buildings to the north. A former landfill is located directly west of the installation.

NALF Cabaniss is an OLF with the current primary role of supporting naval air training operations originating from NASCC. The installation was originally constructed with four 5,000-foot runways. Only two runways, oriented in north/south and northwest/southeast directions, are presently active and maintained. The airfield is lighted, to allow for night flight training, and daylight training is also conducted.

The Incinerator Disposal Site is approximately 17 acres in size and previously served as an incinerator and disposal site for spent and unused munitions. The area is bounded to the south by Oso Creek. Perimeter Road runs along the northern boundary of the site. The majority of the incinerator disposal site is covered with dense vegetation. Open marshes were present on the eastern, southern and western sections.

The former skeet range is approximately seven acres in size and located south and east along Perimeter Road from the incinerator disposal site. Perimeter Road divides the skeet range roughly in half. Oso Creek provides the southwest boundary and a narrow unnamed storm water diversion channel to Oso Creek provides the eastern boundary.

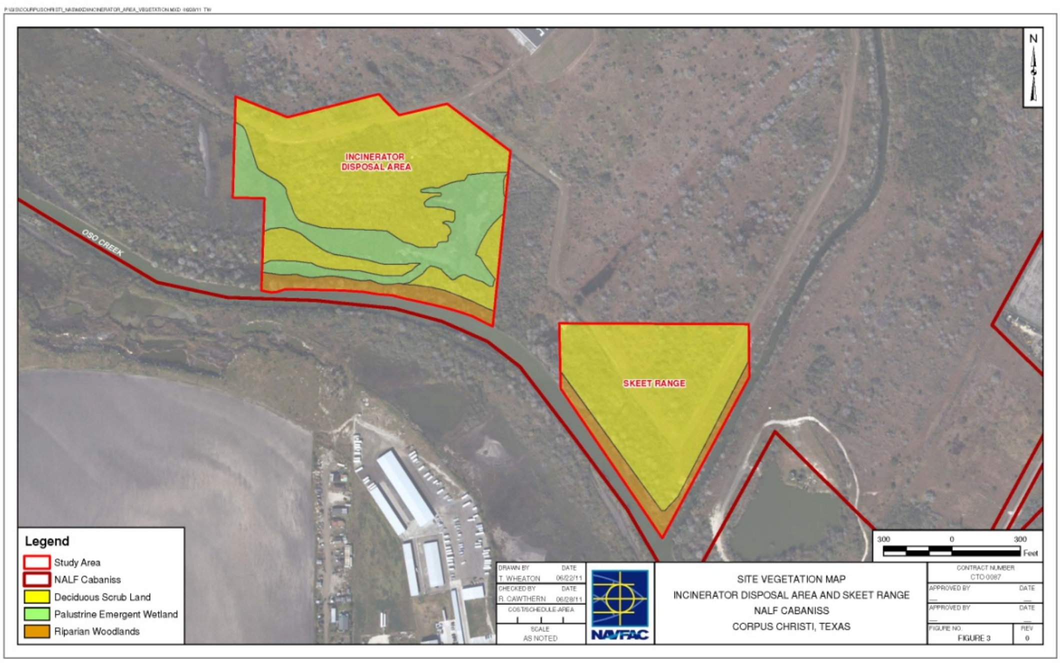
Field assessment activities were conducted on 26 and 27 April, 2011.

2.0 General Site Characteristics

Approximately 70 percent of the study area was heavily vegetated with a mix of upland woody shrubs and small trees typical of early to mid successional woodlands in the southern plains. An open, emergent marsh occupied approximately 20% of the eastern and southern sections of the site. The remaining land consisted of a riparian woodland present along Oso Creek and the stormwater diversion channel that flowed along the eastern edge of the skeet range.

The site had a nearly level to slightly sloping terrain with the gradient decreasing generally north to south. Runoff followed the natural contour of the land and drained into Oso Creek. The site is underlain with a clayey soil material derived from deltaic and marine sediments that is slowly permeable. Figure 2 provides a generalized depiction of the relative size and locations location of the primary vegetative communities present at the site.

Figure 2 – Site Vegetation Map



3.0 Vegetation

Three primary types of vegetative cover were observed within the survey area. The majority of the site is vegetated with a deciduous scrub upland indigenous to Texas. The area adjacent to Oso Creek and the small unnamed tributary consisted of a narrow area of riparian woodlands while the remainder of the site consists of a persistent emergent wetlands. A complete list of vegetation observed during the site visit is included in Appendix A.

3.1 Deciduous Scrub Land

A deciduous scrub habitat covered the majority of the study areas. These areas consisted primarily of honey mesquite (*Prosopis glandulosa),* saffron plum (*Sideroxylon celastrinum)* and guajillo (*Acacia berlandieri)*. Also present were sweet acacia (*Acacia farnesiana)*, retama (*Parkinsonia aculeate)*, algerita (*Mahonia trifoliolata*)*,* elbowbush (*Forestiera angustifolia*) and sugar hackberry (*Celtis laevigata)*. The ground surface across the more open sections was vegetated with a variety of native and non-native grasses and prickly pear (*Opuntia engelmannii)*.

The dense brush creates a suitable cover area for a number of avian species and animal. Commonly observed species included white-eyed vireo, northern cardinal, catbird and white-winged dove and northern mockingbird. The plant species present also provide food sources in the form of fruits and seeds that are eaten by avian and mammal species. The bean of the mesquite provides the greater part of the coyote's summer food as well as food for other mammals including skunk, raccoon and cottontail rabbit. The flowers of the various woody plants provide an important nectar source for butterflies and bees.

Upland scrub growth on incinerator site

Upland scrub growth on incinerator site

Upland scrub growth on skeet range

3.2 Riparian Woodlands

A narrow riparian woodland was present along the edges of Oso Creek and the storm water conveyance channel. These areas consisted of deciduous tree species common along streams included Mexican ash (*Fraxinus berlandieriana),* sugar hackberry and black willow (*Salix nigra).* Guajillo and retama were the primary understory components.

Riparian areas are important travel corridors for some species, and are frequently used as stopover points for migratory birds. The diversity of plant species present along riparian corridors provides shelter and food for birds, mammals, reptiles and upland habitat for many amphibians. Burrowing animals are frequently found in these areas because of the friable nature of alluvial soils. The tree canopy also shades the water and provides a cooling influence which can be beneficial to aquatic habitats. Riparian vegetation also provides a good measure of bank stabilization through its root network.

Riparian woodland along Oso Creek

3.3 Emergent Wetlands

Emergent wetlands are characterized by a dominance of persistent, herbaceous plants. All of the wetlands identified on the study area were located on the incinerator disposal site. These were located in the eastern section, extended narrowly across the southern section and broadened out to the west. The elevated salinity of the soils has resulted in the development of a halophytic vegetative community. The dominated species were Gulf cord grass (*Spartina spartinae),* sea oxeye (*Borrichia frutiscens)* and sturdy bulrush (*Schoenoplectus robustus)*. The low permeability of the soils tends to perch surface water and allows for the establishment of the wetland plant community. Because of their open nature, marsh areas provide an excellent hunting ground for insectivorous birds and birds of prey.

Emergent wetland on western section of incinerator disposal area

Emergent wetland on southern section of incinerator disposal area

The seeds of the bulrush provide an important food source for ducks, songbirds and small mammals. The gulf cordgrass provides good cover and nesting habitat for birds and mammals. These areas were dominated with swamp sparrow, vespid sparrow, Lincoln's sparrow, northern harrier, barn swallow. The burrows of small mammals and crayfish were also noted.

4.0 Oso Creek

Oso Creek is a perennial, freshwater stream channel that flows approximately 28 miles through Nueces County and empties into Oso Bay. The study area is located approximately 10 mile upstream of Oso Bay just below the upper extent of tidal influence. The main stem of the stream flows mainly through agricultural land. The channel receives a significant portion of its flow through effluent discharges upstream of the study area. The channel was typically sixty to seventy feet in width along the boundary of the incinerator site and flowed to the east.

Oso Creek on south side of project area

The creek provides habitat for a number of freshwater fish species and food and water source for birds and mammals. Noted during the site evaluation were little blue heron, green heron, barn swallows and black-bellied whistling duck. Deer and raccoon tracks were noted along the banks of the creek.

A storm water diversion channel is located along the eastern edge of the study area. This feature flows in a southerly direction and empties into Oso Creek. The waterway originates in south Corpus Christi and was constructed as part of the City of Corpus Christi's Oso Creek storm water drainage plan.

Stormwater conveyance channel on east side of the skeet range near confluence with Oso Creek

The majority of this waterway flows through residential and agricultural settings and has very limited aquatic habitat due to impacts from non-point runoff pollutants.

5.0 Wildlife

Mammals

The dense nature of the vegetation on the site provides excellent cover for large and small mammals. Only one mammal was sighted during the site evaluation. White-tailed deer (*Odocoileus virginianus)* were spotted browsing along the edge of Perimeter Road. Various sets of animal tracks were identified along the stream banks and in the muddy flats across the site. Among these were coyote (*Canis latrans),* raccoon (*Procyon lotor),* and cottontail (*Sylvilagus sp.)* along with other smaller rodent species.

Birds

The dense cover offered by the site and its position adjacent to Oso Creek provides habitat for a variety of bird species. Additional habitat is offered by the open marsh on the western section of the site. The list of birds compiled in Appendix B includes those species actually sighted and those identified by voice.

Invertebrates

The abundance of flowering vegetation on the site provides a valuable food source for a variety of insect types. Butterflies and bees were in abundance during the site evaluation. The woody plant species present are also host plants for several butterfly species. The hazardous nature of the site prevented the opportunity for a soil examination for invertebrates. Crayfish burrows were evident in the wetlands on the site.

Reptiles and Amphibians

The state of Texas has more species of herpetofauna that any other state. Reasons for this distinction include the wide diversity of habitat types, its proximity to Mexico and the neotropical climate that is present across the far southern section.

Only two species were actually encountered during the site evaluation; the green anoli (*Anolis carolinensis)* and rough green snake (*Opheodrys aestivus).* Also an unidentified tree frog was heard near Oso Creek.

APPENDIX A

Plant List for Incinerator Disposal Site and Skeet Range

Mesquite Scrub Upland

Honey mesquite	*Prosopis glandulosa*
Guajillo	*Acacia berlandiera*
Saffron plum	*Sideroxylon celastrinum*
Elbowbush	*Forestiera angustifolia*
Sweet acacia	*Acacia farnesiana*
Sugar hackberry	*Celtis laevigata*
Retama	*Parkinsonia aculeata*
Algerita	*Mahonia trifoliolata*
Texas persimmon	*Diospyros texana*
Johnson grass	*Sorghum halepense*
Purple threeawn	*Aristida purpurea*

Riparian Woodland

Mexican ash	*Fraxinus berlandieriana*
Sugar hackberry	*Celtis laevigata*
Black willow	*Salix nigra*
Guajillo	*Acacia berlandiera*
Retama	*Parkinsonia aculeata*
Johnson grass	*Sorghum halepense*

Salt Marsh

Gulf corgrass	*Spartina spartinae*
Sturdy bulrush	*Schoenoplectus robustus*
Sea oxeye	*Borrichia frutescens*

APPENDIX B

Bird List for Incinerator Disposal Site and Skeet Range

Green heron	*Butorides striatus*
Northern harrier	*Circus cyaneus*
Mourning dove	*Zenaida macruoura*
White-winged dove	*Zenaida asiatica*
Lesser nighthawk	*Chordeiles acutipennis*
Unidentified poor will	*Caprimulgus sp.*
Eastern phoebe	*Contopus virens*
Great crested kingbird	*Myiarchus crinitus*
Barn swallow	*Hirundo rustica*
Carolina wren	*Thryothorus ludovicianus*
Bewick’s wren	*Thryomanes bewickii*
Long-billed thrasher	*Toxostoma longirostre*
Northern mockingbird	*Mimus polyglottos*
White-eyed vireo	*Vireo griseus*
Bell’s vireo	*Vireo bellii*
Magnolia warbler	*Dendrioca magnolia*
Tennessee warbler	*Vermavora peregrine*
Chestnut-sided warbler	*Dendroica pensylvanica*
Brown-headed cowbird	*Molothrus ater*
Northern cardinal	*Cardinalis cardinalis*
Vesper sparrow	*Pooecetes gramineus*
Lincoln’s sparrow	*Milospiza lincolnii*
Swamp sparrow	*Melospiza Georgiana*

REFERENCES

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US Department of Agriculture, Natural Resource Conservation Service, Plant Database. http://plants.usda.gov.

APPENDIX D

MONITOR WELL DEVELOPMENT AND PURGING DATA

Tetra Tech NUS, Inc.
Houston, Texas

GROUNDWATER SAMPLE LOG SHEET

Page 1 of 1

Project Site Name:	NALF CABANISS	Sample ID No.:	ID GW 001MW
Project No.:	112G01821	Sample Location:	MW01
		Sampled By:	
[] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[] Other Well Type:		[X] Low Concentration	
[] QA Sample Type:		[] High Concentration	

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	
Date: 9/22/11	Visual	Standard	mS/cm	°C	NTU	mg/l		
Time: 1605								
Method: low flow	Clear	7.03	9.49	27.45	7.74	1.16	62	

PURGE DATA:

Date: 9/22/11	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	TBD	TBD
Method:	See	Purge	Sheet					
Monitor Reading (ppm): —								
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 27.04								
Static Water Level (WL): 17.70								
One Casing Volume(gal/L):								
Start Purge (hrs): 1500								
End Purge (hrs): 1605								
Total Purge Time (min): 65								
Total Vol. Purged (gal/L): 3.2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TAL Metals 6010B, 7471A	4° C/ HNO_3	1 x 500 ml plastic	
Explosives 8330B	4° C	2 x one liter glass amber	
Perchlorate 6850	4° C	1 x 500 ml plastic	
TDS SM2540C	4° C	1 x 250 ml plastic	

OBSERVATIONS / NOTES:

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	

TBD: To Be Determined

Tetra Tech NUS, Inc
Houston, Texas

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NALF Cabaniss Incinerator Disposal Site
PROJECT NUMBER: 112G01821
WELL ID.: ID-MW01
DATE: 9/22/11

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1452	17.70									TD = 27.04
1500	17.94	150	7.46	8.67	10.52	4.68	34.39	154		Start
1505	17.95	150	7.46	8.67	17.7	4.68	34.39	154		10' x .16: 1.6 gal
1510	17.95	150	7.46	8.67	14.6	4.68	34.39	154		
1515	17.96	150	7.46	8.67	11.2	4.68	34.39	154		
1520	17.95	150	7.46	8.67	11.25	4.68	34.39	154		
1525	17.95	150	7.36	8.81	11.1	3.91	34.59	134		
1530	17.95	150	7.11	9.86	9.6	1.75	28.55	73		
1535	17.95	150	7.10	9.88	9.55	1.68	28.56	68		
1540	17.95	150	7.09	9.97	8.68	1.54	27.59	66		
1545	17.93	160	7.07	9.98	6.32	1.47	27.67	66		
1550	17.94	160	7.07	9.99	4.68	1.41	27.70	65		
1555	17.94	150	7.07	9.96	3.68	1.24	27.93	63		
1600	17.95	155	7.07	9.99	3.22	1.18	27.98	60		
1605	17.95	155	7.02	9.99	2.74	1.16	27.95	62		Stable clear

SIGNATURE(S): ______________________

PAGE___OF___

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: MW 1
Site: NALF CABANISS
Date Installed: 9/20/11
Date Developed: 9/21/11
Dev. Method: SURGE/PUMP
Pump Type: Typhoon

Depth to Bottom (ft.): 27.1
Static Water Level Before (ft.): 17.7
Static Water Level After (ft.): 17.71
Screen Length (ft.): 10'
Specific Capacity:
Casing ID (in.): 2.0

Responsible Personnel: Fred Grosskopf
Drilling Co.: Gaimo
Project Name: NALF CABANISS
Project Number: 112G01821

27-17.7= 9.4 =1.53

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
			17.70					
1520	<0.2		17.71					surge well
1525	<0.2	2.5/2.5	17.71	28.50	7.26	11.8	800	CLAY 1.5 minutes
1545	<0.2	2.5/5	17.71	26.68	7.09	9.09	800	
1620	<0.2	2.5/7.5	17.71	25.82	7.16	9.14	800	CLEARING
1640	<0.2	2.5/10.0	17.71	25.47	7.12	9.49	138	
1700	<0.2	2.5/12.5	17.71	25.27	7.11	10.3	105	
1720	<0.2	2.5/15	17.71	25.31	7.15	10.8	54	Clear to cloudy
1740	<0.2	2.5/17.5	17.71	24.96	7.09	11.0	55	Clear to cloudy

well wouldn't pump 2.5 gallons then dry, would allow to recharge to 17.71 ~~recharge~~ then pump down again

Tetra Tech NUS, Inc.
Houston, Texas

GROUNDWATER SAMPLE LOG SHEET

Project Site Name:	NALF CABANISS	Sample ID No.:	ID GW 002MW
Project No.:	112G00356	Sample Location:	MW02
		Sampled By:	LB/BT
[] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[] Other Well Type:		[X] Low Concentration	
[] QA Sample Type:		[] High Concentration	

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	
Date: 9/22/11	Visual	Standard	mS/cm	°C	NTU	mg/l		
Time: 1025								
Method: Low flow	Clear	2.85	17.4	26.40	1.83	1.90	117	

PURGE DATA:

Date: See purge	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	TBD	TBD
Method: data sheet								
Monitor Reading (ppm): –								
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD): 17.10 TOC								
Static Water Level (WL): 8.00 TOC								
One Casing Volume(gal/L):								
Start Purge (hrs): 920								
End Purge (hrs): 1020								
Total Purge Time (min): 60 min								
Total Vol. Purged (gal/L): 2.6 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TAL Metals 6010B, 7471A	4° C/ HNO_3	1 x 500 ml plastic	
Explosives 8330B	4° C	2 x one liter glass amber	
Perchlorate 6850	4° C	1 x 500 ml plastic	
TDS SM2540C	4° C	1 x 250 ml plastic	

OBSERVATIONS / NOTES:

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	

TBD: To Be Determined

Tetra Tech NUS, Inc
Houston, Texas

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NALF Cabaniss Incinerator Disposal Site
PROJECT NUMBER: 112G01821

WELL ID.: MW-2
DATE: 9/22/11

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0915	8.00									TD: 17.10
920	Start purge									intake at 13 ft
921		200	6.59	18.1	34.6	2.97	25.4	134		Clear
925	8.80	180	6.73	18.0	13.6	2.23	25.49	135		
930	8.78	160	6.80	17.7	13.5	1.87	25.64	128		8' saturated screen:
935	8.78	160	6.81	17.5	15.8	1.74	25.75	108		1.3 gal x
940	8.78	160	6.81	17.4	16.4	1.58	25.85	81		
945	8.79	160	6.82	17.3	9.53	1.52	25.93	77		
950	8.79	160	6.82	17.3	5.66	1.63	26.04	84		
955	8.80	160	6.83	17.3	4.96	1.73	26.19	96		
1000	8.80	160	6.83	17.3	3.65	1.74	26.21	100		
1005	8.80	160	6.84	17.4	2.85	1.80	26.27	106		
1010	8.80	160	6.84	17.4	2.23	1.90	26.34	113		
1015	8.80	160	6.85	17.4	1.98	1.90	26.40	117		
1020	8.80	160	6.85	17.4	1.83	1.90	26.40	117		Clear
										Stable for
										sampling

SIGNATURE(S): ______

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@ 9.4ft ~~7.9ft~~ asl

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: MW-2
Site: NALF CABANISS
Date Installed: 9.20.11
Date Developed: 9.21.11
Dev. Method: Surge & Pump
Pump Type: Typhoon

Depth to Bottom (ft.): 17.09
Static Water Level Before (ft.): 8.57
Static Water Level After (ft.): ~~15.85 ft~~ 8.80
Screen Length (ft.): 15'
Specific Capacity:
Casing ID (in.): 2"

Responsible Personnel: Fred Grosskopf
Drilling Co.: Gainco
Project Name: NALF CABANISS
Project Number: 112G01821

1.38 gal = 1 well vol

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
805		2012	8.57		6.			
810		2014	11.0	24.04	6.53	15.3	239	1qt = 8 sec
815		216	11.0	—	—	—	—	
0830	0		8.59/Dry					
0910		2/8	8.59/Dry	~~24~~ 24.98	6.82	16.1	200	
0920			9.00/DRY					~~Purge~~ surge well readings @ end of surge
0930		2/10	8.69/DRY	24.79	6.83	17.1		clds after surge
0950		2/12	8.70/DRY	25.00	6.86	17.05		
0950		2/12	8.70/DRY	25.06	6.86	16.5	OR	
1010		2/14	8.80/DRY	25.42	6.87	15.6	OR	
1030		2/16	8.70/DRY	25.57	6.86	16.2		still cloudy ~~fines in water~~
1050		2/18	8.80/DRY	25.81	6.88	15.5	61	Clearer

well pumped 2.0 gallons before dry would allow for recharge to 8.7
~20 minutes and pump down again.

Tetra Tech NUS, Inc.
Houston, Texas

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NALF CABANISS
Project No.: 112G01821

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type: ______
[] QA Sample Type: ______

Sample ID No.: ID GW 003MW
Sample Location: MW03
Sampled By:
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	ORP	
Date: 9/22/11								
Time: 1245								
Method: Low Flow	Clear	6.73	30.6	26.77	12.0	0.24	111	

PURGE DATA:

Date: 9/22/11	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	TBD	TBD
Method:	See	purge	sheet					
Monitor Reading (ppm): -								
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 17.95								
Static Water Level (WL): 8.42								
One Casing Volume(gal/L):								
Start Purge (hrs): 1125								
End Purge (hrs): 1245								
Total Purge Time (min): 80								
Total Vol. Purged (gal/L): 4.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TAL Metals 6010B, 7471A	4° C/ HNO_3	1 x 500 ml plastic	
Explosives 8330B	4° C	2 x one liter glass amber	
Perchlorate 6850	4° C	1 x 500 ml plastic	
TDS SM2540C	4° C	1 x 250 ml plastic	

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

TBD: To Be Determined

Tetra Tech NUS, Inc
Houston, Texas

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NALF Cabaniss Incinerator Disposal Site
PROJECT NUMBER: 112G01821
WELL ID.: ID-MW03
DATE: 9/22/11

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1115	8.92									TO = 17.95
										intake ≈ 14 ft
1123										start
1125	9.15	195	6.86	29.7	11.04	1.65	26.98	164		10 ft = 1.6 gal
1130	9.15	175	6.79	30.0	8.43	1.18	26.76	153		Clear
1135	9.14	175	6.78	30.1	6.89	1.0	26.66	148		
1140	9.17	160	6.76	30.2	6.97	0.72	26.50	142		
1145	9.17	160	6.75	30.3	9.59	0.58	26.64	135		
1150	9.15	180	6.74	30.4	9.94	0.56	26.67	131		
1155	9.15	160	6.74	30.4	9.94	0.43	26.78	126		
1260	9.15	160	6.73	30.4	11.9	0.37	26.91	123		
1205	9.18	165	6.73	30.4	12.7	0.35	26.94	121		
1210	9.15	165	6.74	30.5	12.8	0.27	26.79	118		
1215	9.15	165	6.74	30.5	14.4	0.27	26.79	118		
1220	9.15	165	6.74	30.5	11.9	0.27	26.79	118		
1225	9.15	165	6.74	30.5	11.3	0.27	26.79	118		
1230	9.15	165	6.74	30.5	11.5	0.27	26.79	118		
1235	9.15	165	6.73	30.6	12.1	0.24	26.77	111		
1240	9.15	165	6.79	30.6	12.0	0.24	26.77	111		
1245	9.15	165	6.73	30.6	12.0	0.24	26.77	111		Stable
										water clear
										Heat affecting NTU
										meter?

SIGNATURE(S): ______________________

PAGE___OF___

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: MW 03
Site: NALF CABANISS
Date Installed: 9/20/11
Date Developed: 9/21/11
Dev. Method: SURGE/PUMP
Pump Type: TYPOON

Depth to Bottom (ft.): 18.1
Static Water Level Before (ft.): 8.95
Static Water Level After (ft.): 8.95
Screen Length (ft.): 10
Specific Capacity:
Casing ID (in.): 20"

Responsible Personnel: Fred Grosskopf
Drilling Co.: Gaines
Project Name: NALF CABANISS
Project Number: 112G01821

18.1 − 8.95 = 9.5 = 1.49

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ____)	Turbidity (NTU)	Remarks (odor, color, etc.)
1130			8.95					
1130								surge well
1135		5/5	8.95	28.95	6.84	27.0		Start pu
1200		4/9	8.95	27.28	6.81	~~27.28~~ 26.2 ?		4 gallon 12 min dry CLOV. BED IN BUCKET
1220		9/18	8.95	26.78	6.79	24.1	—	
~~1240~~								60 gal 9 gal Pumped
1245								Surge well
~~1245~~		4/22	8.95	pump				pumped 4 gallon dry
1220		4/22	8.95	27.96	6.82	25.6		
~~1340~~								
~~1340~~	1335	4/26	8.95	27.05	6.80	26.0	8	cldy clearing
1355		3/29	8.95	26.71	6.78	24.9	410 00	cldy clearing
1415		2/31	8.95	27.60	6.83	27.8	410	Pump dry 2 gallon dried

mw pumped 4 gallon in 2 minutes 3.4 0.11 = 0.34
hypocdry would allow to recharge and repeat.

Tetra Tech NUS, Inc.
Houston, Texas

GROUNDWATER SAMPLE LOG SHEET

Page 1 of 1

Project Site Name:	NALF CABANISS	Sample ID No.:	SR-MW01
Project No.:	112G00356	Sample Location:	MW01
		Sampled By:	RS
[] Domestic Well Data		C.O.C. No.:	
[X] Monitoring Well Data		Type of Sample:	
[] Other Well Type:		[X] Low Concentration	
[] QA Sample Type:		[] High Concentration	

SAMPLING DATA:

	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	ORP	
Date: 9-23-11								
Time: 1220								
Method: Low Flow	clear	6.68	44.5	24.90	2.71	1.57	-185	

PURGE DATA:

Date:	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	TBD	TBD
Method:								
Monitor Reading (ppm):								
Well Casing Diameter & Material Type:								
Total Well Depth (TD): 30.1								
Static Water Level (WL): 20.71								
One Casing Volume(gal/L):								
Start Purge (hrs): 1140								
End Purge (hrs): 1220								
Total Purge Time (min): 40min								
Total Vol. Purged (gal/L): 1.53								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PAHs 8270C	4° C	2 x one liter glass amber	✓
TDS SM2540C	4° C	1 x 250 ml plastic	✓

OBSERVATIONS / NOTES:

30.1
− 20.71
9.39
x 0.163
1.53

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	

TBD: To Be Determined

Tetra Tech NUS, Inc
Houston, Texas

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NALF Cabaniss Skeet Range
PROJECT NUMBER: 112G00356
WELL ID.: MW 1
DATE: 9-23-11

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1130	20.71				~~20.85~~					
1140	20.79	165	6.65	67.4	20.5	0.48	25.74	-328	–	
1145	20.79	165	6.67	46.6	27.0	1.52	25.18	-196	–	
1150	20.80	170	6.66	45.7	22.9	1.44	24.95	-191	–	
1155	20.80	170	6.66	45.5	13.6	1.45	24.88	-188	–	
1200	20.80	160	6.67	45.1	6.16	1.47	24.89	-186	–	
1205	20.80	160	6.67	44.7	3.09	1.46	24.90	-186	–	
1210	20.80	160	6.67	44.5	2.89	1.46	24.88	-186	–	
1215	20.80	160	6.68	44.4	2.70	1.41	24.87	-186	–	
1220									–	Sample

SIGNATURE(S):

PAGE___OF___

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: MW 1 SR
Site: NALF CABANISS
Date Installed: 9/22/11
Date Developed: 9/22/11
Dev. Method: surge/pump
Pump Type: Typhoon

Depth to Bottom (ft.): 30.40
Static Water Level Before (ft.): 20.78
Static Water Level After (ft.):
Screen Length (ft.): 10
Specific Capacity:
Casing ID (in.): 2.0"

Responsible Personnel: Fred Grosslight
Drilling Co.: Garveo
Project Name: NALF CABANISS
Project Number: 112G00356

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units mS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1117			20.78					
1125	<0.1		20.78					purge wells
1130	<0.1		20.78					~~startup~~ start purge
1135	<0.1	5/5	22.50	24.66	6.71	39.5	09	cldy
1140	<0.1	5/10	22.60	24.25	6.60	43.8	05	clearing
1145	<0.1	5/15	22.70	24.33	6.57	43.9	05	
1152	<0.1	5/20	22.80	24.30	6.54	44.6	122	pump stalls
1158	<0.1	5/25	22.70	24.38	6.53	45.4	33.6	clearing
1204	<0.1	5/30	22.80	24.26	6.51	45.8	10.26	clean
1210	<0.1	5/35	22.90	24.45	6.54	45.8	7.25	clear
1216	<0.1	5/40	22.96	24.47	6.53	45.7	7.2	clear
1223	<0.1	5/45	22.90	24.44	6.53	45.8	6.33	end devel

Tetra Tech NUS, Inc.
Houston, Texas

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NALF CABANISS
Project No.: 112G00356

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: SR-MW02
Sample Location: MW02
Sampled By: BS
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color Visual	pH Standard	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/l	ORP	
Date: 9-23-11								
Time: 1035								
Method: Low Flow	clear	6.63	81.9	26.00	16.92	0.00	-420	

PURGE DATA:

Date: 9-23-11	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	TBD	TBD
Method: Low Flow								
Monitor Reading (ppm):								
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD): 41.80								
Static Water Level (WL): 21.45								
One Casing Volume(gal/L):								
Start Purge (hrs): 0835								
End Purge (hrs): 1035								
Total Purge Time (min): 120								
Total Vol. Purged (gal/L): ~~3.32~~	5.1							

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PAHs 8270C	4° C	2 x one liter glass amber	✓
TDS SM2540C	4° C	1 x 250 ml plastic	✓

OBSERVATIONS / NOTES:

41.80
-21.45
20.35
x 0.163
3.32

Additional water purged to allow for Turbidity to lower.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
✓	FD092311-01

Signature(s):

TBD: To Be Determined

Tetra Tech NUS, Inc
Houston, Texas

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NALF Cabaniss Skeet Range
PROJECT NUMBER: 112G00356
WELL ID.: MW-2
DATE: 9/23/11

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
806	21.45									
0835	21.60	150	6.62	81.7	17.0	1.11	23.99	-292	-	
0840	21.61	150	6.62	82.0	31.0	0.88	24.00	-297	-	
0845	21.61	150	6.63	83.2	31.9	0.47	24.15	-339	-	
0850	21.61	150	6.63	83.3	37.9	0.39	24.13	-342	-	
0855	21.61	155	6.63	83.7	24.4	0.23	24.14	-355	-	
0900	21.61	155	6.63	83.7	20.5	0.09	24.18	-366	-	
0905	21.61	155	6.63	83.6	23.4	0.04	24.27	-379	-	
0910	21.61	155	6.63	83.4	33.5	0.01	24.39	-387	-	
0915	21.61	155	6.63	83.3	40.3	0.03	24.42	-392	-	
0920	21.61	150	6.63	83.3	39.3	0.00	24.58	-398	-	
0925	21.61	155	6.63	83.1	38.1	0.00	24.73	-402	-	
0930	21.62	155	6.63	83.0	31.8	0.00	24.84	-404	-	
0935	21.62	155	6.63	83.0	27.7	0.00	24.88	-405		
0940	21.62	150	6.63	83.0	24.6	0.00	24.99	-408		
0945	21.63	155	6.63	82.8	21.4	0.00	25.15	-411		
0950	21.63	155	6.63	82.7	20.1	0.00	25.23	-412		
0955	21.63	155	6.63	82.4	15.8	0.00	25.38	-414		
1000	21.63	155	6.63	82.3	14.6	0.00	25.51	-414		
1005	21.63	155	6.63	82.4	12.6	0.00	25.54	-417		
1010	21.63	155	6.63	82.4	11.6	0.00	25.63	-417		
1015	21.64	155	6.63	82.3	10.19	0.00	25.73	-416		
1020	21.64	155	6.63	82.2	9.11	0.00	25.71	-419		
1025	21.64	155	6.63	82.2	7.75	0.00	25.74	-419		
1030	21.64	155	6.63	82.1	7.16	0.00	25.91	-419		
1035										Sample

SIGNATURE(S): [signature]

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Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: MW 25R
Site: NALF CABANISS
Date Installed: 9/21/11
Date Developed: 9/22/11
Dev. Method: surge/pump
Pump Type: typhoon

Depth to Bottom (ft.): 4a.8
Static Water Level Before (ft.): 21.55
Static Water Level After (ft.): ~~22.40~~ FC
Screen Length (ft.): 10
Specific Capacity:
Casing ID (in.): 2.0'

Responsible Personnel: Fred Grosskopf
Drilling Co.: Gainco
Project Name: NALF CABANISS
Project Number: 112G00356

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ____)	Turbidity (NTU)	Remarks (odor, color, etc.)
0820			21.55					
0825			21.55					surge well
0830			21.90					start pump
08 ~~40~~ 35	.5	5/5	25.0	23.44	6.44	73.5		after 18 min
0840	.5	5/10	25.40	23.25	6.45	75.5		
0845	.5	5/15	25.50	23.27	6.45	76.1		
0848	.5	5/20	26.50	23.20	6.45	76.5		
0852	.5	5/25	25.7	23.28	6.45	77.0		
0855	.5	5/30	25.8	23.31	6.47	77.2		stop for survey well
			21.					allow to recover
0910			21.7					recover pump
0915	.5	5/35	25.40	23.52	6.49	77.6	915	
0918	.5	5/40	25.75	23.65	6.49	78.0	680	
0924	.5	5/45	25.85	23.43	6.46	78.4	53	
0927	.5	5/50	25.9	23.37	6.48	78.8	135	
0930	.5	5/55	25.90	23.35	6.48	79.1	100.5	
0933		5/60	25.90	23.35	6.47	79.6	114	
0937		5/65	25.90	23.34	6.47	79.6	87.3	

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: MW2 SP cont
Site: NALF CABANISS
Date Installed: 9/21/11
Date Developed: 9/22/11
Dev. Method: surge/pump
Pump Type: typhoon

Depth to Bottom (ft.): 40.8
Static Water Level Before (ft.): 21.55
Static Water Level After (ft.):
Screen Length (ft.): 10
Specific Capacity:
Casing ID (in.): 2.0"

Responsible Personnel: F. Grosskopf
Drilling Co.: Gainco
Project Name: NALF CABANISS
Project Number: 112G00356

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ___)	Turbidity (NTU)	Remarks (odor, color, etc.)
pou 0942		5/70	25.95	23.45	6.46	81.8	86.3	
0950		5/75	25.95	23.42	6.49	80.1	56.6	clearing power out.
0954		5/80	25.95	23.40	6.48	80.0	49.6	
0957		5/85	25.95	23.34	6.47	80.1	41.8	slightly cldy
1001		5/90	25.95	23.42	6.47	80.4	32.1	
1005		5/95	25.95	23.43	6.47	80.2	30.2	
1010		5/100	25.95	23.43	6.47	80.0	22.6	
1014		5/105	25.95	23.40	6.47	80.0	18.9	clear
1018		5/110	25.95	23.51	6.48	80.0	13.1	

Tetra Tech NUS, Inc.
Houston, Texas

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NALF CABANISS
Project No.: 112G00356

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: SR-MW03
Sample Location: MW03
Sampled By: BT
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	
Date: 9-23-11								
Time: 1450	Visual	Standard	mS/cm	^{0}C	NTU	mg/l		
Method: Low Flow	clear	6.64	51.8	25.45	4.19	0.17	-236	

PURGE DATA:

Date:	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	TBD	TBD
Method:								
Monitor Reading (ppm):								
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD): 31.86								
Static Water Level (WL): 20.49								
One Casing Volume(gal/L):								
Start Purge (hrs): 1405								
End Purge (hrs): 1450								
Total Purge Time (min): 45 min								
Total Vol. Purged (gal/L): 1.85								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
PAHs 8270C	4° C	2 x one liter glass amber	✓
TDS SM2540C	4° C	1 x 250 ml plastic	✓

OBSERVATIONS / NOTES:

31.86
- 20.49
11.37
x 0.163
1.85

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	

TBD: To Be Determined

Tetra Tech NUS, Inc
Houston, Texas

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NALF Cabaniss Skeet Range
PROJECT NUMBER: 112G00356
WELL ID.: SR MW03
DATE: 9-23-11

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1355	20.49									
1405	20.54	155	6.67	50.0	8.78	1.47	25.89	-190	–	
1410	20.55	160	6.66	50.0	8.08	1.25	25.87	-193	–	
1415	20.55	165	6.66	50.0	8.55	0.90	25.77	-201	–	
1420	20.55	160	6.66	50.1	11.54	0.69	25.63	-201	–	
1425	20.56	160	6.66	50.5	12.1	0.53	25.60	-219	–	
1430	20.56	160	6.65	50.9	10.52	0.42	25.58	-224	–	
1435	20.56	160	6.64	51.5	6.94	0.25	25.59	-231	–	
1440	20.56	160	6.64	51.5	6.29	0.23	25.57	-232	–	
1445	20.56	160	6.64	51.7	4.79	0.20	25.51	-234	–	
1450										Sample

SIGNATURE(S):

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Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: MW 3 SR
Site: NALF CABANISS
Date Installed: 9/22/11
Date Developed: 9/22/11
Dev. Method: surge/pump
Pump Type: typhoon

Depth to Bottom (ft.): 40.8
Static Water Level Before (ft.): 20.55
Static Water Level After (ft.): 22.20
Screen Length (ft.): 10
Specific Capacity:
Casing ID (in.): 2.04

Responsible Personnel: Fred Grosskopf
Drilling Co.: Gainco
Project Name: NALF CABANISS
Project Number: 112G00356

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ___)	Turbidity (NTU)	Remarks (odor, color, etc.)
1435			20.55					
1456								Surge MW
1502			20.55					Start pump
1506		5/5	22.00	28.75	6.49	48.9	107	cldy
1510		5/10	22.10	26.69	6.5	48.0	67.8	CLEARING
1514		5/15	22.10	25.40	6.53	49.1	55.2	
1518		5/20	22.10	24.34	6.54	49.7	48.2	clearing
1522		5/25	22.20	23.97	6.53	50.6	27.7	
1526		5/30	22.20	23.86	6.53	50.7	19.1	
1530		5/35	22.20	23.94	6.52	51.1	17.4	
1534		5/40	22.20	23.81	6.51	51.1	15.8	
1538		5/45	22.20	23.77	6.49	51.3	14.0	clear to
1541		5/50	22.20	23.73	6.48	51.40	11.9	
1545		5/55	22.20	23.7	6.51	51.80	11.6	

APPENDIX E

MONITOR WELL RECORDS

STATE OF TEXAS WELL REPORT for Tracking #267960

Owner:	**Commanding Officer US Naval Air Station**	Owner Well #:	**ICMW1**
Address:	**11001 D St., Suite 143** **Corpus Christi , TX 78419**	Grid #:	**83-21-5**
Well Location:	**2601 Saratoga Blvd.** **Corpus Christi , TX 78413**	Latitude:	**27° 41' 44" N**
Well County:	**Nueces**	Longitude:	**097° 26' 07" W**
Elevation:	**12 ft.**	GPS Brand Used:	**Surveyed**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date:	Started: **9/20/2011** Completed: **9/20/2011**
Diameter of Hole:	Diameter: **8.25 in From Surface To 25 ft**
Drilling Method:	**Hollow Stem Auger**
Borehole Completion:	Other: **20/40 sand pack**
Annular Seal Data:	1st Interval: **From 25 ft to 12 ft with Sand 6 bags (#sacks and material)** 2nd Interval: **From 2 ft to 12 ft with Chips 5 (#sacks and material)** 3rd Interval: **From 0 ft to 2 ft with cement 1 bag (#sacks and material)** Method Used: **Poured** Cemented By: **Stanley J. Grover Jr.** Distance to Septic Field or other Concentrated Contamination: **No Data** Distance to Property Line: **No Data** Method of Verification: **No Data** Approved by Variance: **No Data**
Surface Completion:	**Surface Sleeve Installed**
Water Level:	Static level: **15 ft. below land surface on 9/20/2011** Artesian flow: **No Data**
Packers:	**No packers used**
Plugging Info:	Casing or Cement/Bentonite left in well: **No Data**
Type Of Pump:	**No Data**
Well Tests:	**No Data**
Water Quality:	Type of Water: **No Data** Depth of Strata: **No Data** Chemical Analysis Made: **No Data** Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**
Certification Data:	The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**Gainco, Inc.** **P.O. Box 309** **Portland , TX 78374**
Driller License Number:	**54247**
Licensed Well Driller Signature:	**Stanley J. Grover Jr**
Registered Driller Apprentice	**No Data**

Signature:

Apprentice Registration Number: **No Data**

Comments: **No Data**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking number (Tracking **#267960**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0-2.2 ft Top soil with caliche fragments
2.2-14 ft Grey Clay
14-22 ft Tan vfg silty sand
22-25 ft Tan clay, Hard, slightly plastic

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
Dia - 2" new pipe
Well - Plastic Sch 40 PVC
Screen - 10 of Sch 40 0.010 slotted screen 14' to 24'
Riser - Sch 40 PVC 0 to 14'

STATE OF TEXAS WELL REPORT for Tracking #267961

Owner:	**Commanding Officer US Naval Air Station**	Owner Well #:	**ICMW2**
Address:	**11001 D St., Suite 143 Corpus Christi , TX 78419**	Grid #:	**83-21-5**
Well Location:	**2601 Saratoga Blvd. Corpus Christi , TX 78413**	Latitude:	**27° 41' 41" N**
Well County:	**Nueces**	Longitude:	**097° 26' 07" W**
Elevation:	**12 ft.**	GPS Brand Used:	**Surveyed**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date:	Started: **9/20/2011** Completed: **9/20/2011**
Diameter of Hole:	Diameter: **2.25 in From Surface To 20 ft** Diameter: **8.25 in From 0 ft To 14 ft**
Drilling Method:	**Hollow Stem Auger**
Borehole Completion:	Other: **20/40 sand pack**
Annular Seal Data:	1st Interval: **From 3 ft to 14 ft with Sand 6 bags (#sacks and material)** 2nd Interval: **From 1 ft to 3 ft with Chips 1 (#sacks and material)** 3rd Interval: **From 0 ft to 1 ft with cement 1/2 bag (#sacks and material)** Method Used: **Poured** Cemented By: **Stanley J. Grover Jr.** Distance to Septic Field or other Concentrated Contamination: **No Data** Distance to Property Line: **No Data** Method of Verification: **No Data** Approved by Variance: **No Data**
Surface Completion:	**Surface Sleeve Installed**
Water Level:	Static level: **5 ft. below land surface on 9/20/2011** Artesian flow: **No Data**
Packers:	**No packers used**
Plugging Info:	Casing or Cement/Bentonite left in well: **No Data**
Type Of Pump:	**No Data**
Well Tests:	**No Data**
Water Quality:	Type of Water: **No Data** Depth of Strata: **No Data** Chemical Analysis Made: **No Data** Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**
Certification Data:	The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**Gainco, Inc. P.O. Box 309 Portland , TX 78374**
Driller License Number:	**54247**
Licensed Well Driller Signature:	**Stanley J. Grover Jr**
Registered Driller	**No Data**

Apprentice Signature:	
Apprentice Registration Number:	**No Data**
Comments:	**No Data**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking number (Tracking **#267961**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0-1 ft Top soil with caliche fragments
1-5 ft Grey Clay stiff plastic with caliche
5-6 ft Tan vfg silty sand
6-9 ft Grey silty sandy clay less sand at depth 4 inch clay layer
9-13 ft Tan grey silty fine grained sand some silt.
13-20 ft Brownish orange hard clay slightly Plastic.

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
Dia - 2" new pipe
Well - Plastic Sch 40 PVC
Screen - 10 of Sch 40 0.010 slotted screen 4' to 14'
Riser - Sch 40 PVC 0 to 4'

STATE OF TEXAS WELL REPORT for Tracking #267962

Owner:	**Commanding Officer US Naval Air Station**	Owner Well #:	**ICMW3**
Address:	**11001 D St., Suite 143 Corpus Christi , TX 78419**	Grid #:	**83-21-5**
Well Location:	**2601 Saratoga Blvd. Corpus Christi , TX 78413**	Latitude:	**27° 41' 40" N**
Well County:	**Nueces**	Longitude:	**097° 26' 03" W**
Elevation:	**12 ft.**	GPS Brand Used:	**Surveyed**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date: Started: **9/20/2011**
Completed: **9/20/2011**

Diameter of Hole: Diameter: **8.25 in From Surface To 15 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Other: **20/40 sand pack**

Annular Seal Data: 1st Interval: **From 3 ft to 14 ft with Sand 6 bags (#sacks and material)**
2nd Interval: **From 1 ft to 3 ft with Chips 1 (#sacks and material)**
3rd Interval: **From 0 ft to 1 ft with cement 1/2 bag (#sacks and material)**
Method Used: **Poured**
Cemented By: **Stanley J. Grover Jr.**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Sleeve Installed**

Water Level: Static level: **5 ft. below land surface on 9/20/2011**
Artesian flow: **No Data**

Packers: **No packers used**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No Data**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Gainco, Inc.**
P.O. Box 309
Portland , TX 78374

Driller License Number: **54247**

Licensed Well Driller Signature: **Stanley J. Grover Jr**

Registered Driller Apprentice: **No Data**

Signature:

Apprentice Registration Number:	**No Data**
Comments:	**No Data**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking number (Tracking **#267962**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0-0.2 ft Top soil
0.2-2 ft Grey sandy Clay sand increasing w/ depth
2-5 ft Tan clayey sandy silt
5-5.1 ft Grey clay some silt
5.1-14 ft Tan grey silty vfg/fg sand some silt
14-15 Tan hard clay slightly plastic

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
Dia - 2" new pipe
Well - Plastic Sch 40 PVC
Screen - 10 of Sch 40 0.010 slotted screen 4' to 14'
Riser - Sch 40 PVC 0 to 4'

STATE OF TEXAS WELL REPORT for Tracking #267964

Owner:	**Commanding Officer US Naval Air Station**	Owner Well #:	**SRMW01**
Address:	**11001 D St., Suite 143** **Corpus Christi , TX 78419**	Grid #:	**83-21-5**
Well Location:	**2601 Saratoga Blvd.** **Corpus Christi , TX 78413**	Latitude:	**27° 41' 31" N**
Well County:	**Nueces**	Longitude:	**097° 25' 49" W**
Elevation:	**18 ft.**	GPS Brand Used:	**Surveyed**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date:	Started: **9/21/2011** Completed: **9/21/2011**
Diameter of Hole:	Diameter: **8.25 in From Surface To 30 ft**
Drilling Method:	**Hollow Stem Auger**
Borehole Completion:	Other: **20/40 sand pack**
Annular Seal Data:	1st Interval: **From 18 ft to 30 ft with Sand 6 bags (#sacks and material)** 2nd Interval: **From 2 ft to 18 ft with Chips 8 (#sacks and material)** 3rd Interval: **From 0 ft to 2 ft with cement 1 bag (#sacks and material)** Method Used: **Poured** Cemented By: **Stanley J. Grover Jr.** Distance to Septic Field or other Concentrated Contamination: **No Data** Distance to Property Line: **No Data** Method of Verification: **No Data** Approved by Variance: **No Data**
Surface Completion:	**Surface Sleeve Installed**

Water Level:	Static level: **18 ft. below land surface on 9/21/2011** Artesian flow: **No Data**
Packers:	**No packers used**
Plugging Info:	Casing or Cement/Bentonite left in well: **No Data**
Type Of Pump:	**No Data**
Well Tests:	**No Data**

Water Quality:	Type of Water: **No Data** Depth of Strata: **No Data** Chemical Analysis Made: **No Data** Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**
Certification Data:	The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**Gainco, Inc.** **P.O. Box 309** **Portland , TX 78374**
Driller License Number:	**54247**
Licensed Well Driller Signature:	**Stanley J. Grover Jr**
Registered Driller Apprentice	**No Data**

Signature:

Apprentice Registration Number: **No Data**

Comments: **No Data**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking number (Tracking **#267964**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0-1 ft Topsoil, black
1-5 ft Clay grey/black, hard, dry, silty
5-10 ft Grey/tan clay very stiff slightly plastic, caliche toward depth
10-16ft Grey clay very stiff mod trace caliche sand stringer
16-19ft Tan fine grained silty sand moist to wet
19-19.5 Tan sandy clay
19.5-21.5ft Tan fine grained silty sand moist
21.5-22.5ft Tan sandy clay
22.5-25ft Tan sand fine grained silty to clayey
25-27ft Tan sand fine grained silty to clayed moist to wet.
27-30ft Brown clay hard slightly plastic, silty dry to moist

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
Dia - 2" new pipe
Well - Plastic Sch 40 PVC
Screen - 10 of Sch 40 0.010 slotted screen 20' to 30'
Riser - Sch 40 PVC 0 to 20'

STATE OF TEXAS WELL REPORT for Tracking #267966

Owner:	**Commanding Officer US Naval Air Station**	Owner Well #:	**SRMW02**
Address:	**11001 D St., Suite 143** **Corpus Christi , TX 78419**	Grid #:	**83-21-5**
Well Location:	**2601 Saratoga Blvd.** **Corpus Christi , TX 78413**	Latitude:	**27° 41' 33" N**
Well County:	**Nueces**	Longitude:	**097° 25' 50" W**
Elevation:	**18 ft.**	GPS Brand Used:	**Surveyed**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date:	Started: **9/20/2011** Completed: **9/21/2011**
Diameter of Hole:	Diameter: **8.25 in From Surface To 40 ft**
Drilling Method:	**Hollow Stem Auger**
Borehole Completion:	Other: **20/40 sand pack**
Annular Seal Data:	1st Interval: **From 28 ft to 40 ft with Sand 12 bags (#sacks and material)** 2nd Interval: **From 2 ft to 28 ft with Chips 12 (#sacks and material)** 3rd Interval: **From 0 ft to 2 ft with cement 1 bag (#sacks and material)** Method Used: **Poured** Cemented By: **Stanley J. Grover Jr.** Distance to Septic Field or other Concentrated Contamination: **No Data** Distance to Property Line: **No Data** Method of Verification: **No Data** Approved by Variance: **No Data**
Surface Completion:	**Surface Sleeve Installed**

Water Level:	Static level: **17 ft. below land surface on 9/21/2011** Artesian flow: **No Data**
Packers:	**No packers used**
Plugging Info:	Casing or Cement/Bentonite left in well: **No Data**
Type Of Pump:	**No Data**
Well Tests:	**No Data**

Water Quality:	Type of Water: **No Data** Depth of Strata: **No Data** Chemical Analysis Made: **No Data** Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**
Certification Data:	The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**Gainco, Inc.** **P.O. Box 309** **Portland , TX 78374**
Driller License Number:	**54247**
Licensed Well Driller Signature:	**Stanley J. Grover Jr**
Registered Driller Apprentice	**No Data**

Signature:

Apprentice Registration Number:	**No Data**
Comments:	**No Data**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

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P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0-5 ft black silty clay topsoil, gray stiff clay some caliche
5-10 ft Grey/tan clay very stiff slightly plastic, caliche, dry.
10-17ft Grey clay very stiff mod plastic silty some caliche Fe nodules
17-17.5ft Tan sand vfg, silty
17.5-19ft Tan clay
19-20ft Tan sand vfg, silty
20-23ft Tan clay stiff, sandy
23-25ft Silt, clayey, sandy
25-27ft Tan stiff clay mod plastic
27-28ft Tan clayey sand
28-32.5ft Tan stiff clay little plasticity
32.5-37.2ft Tan sand fg to vfg
37.2-38.5ft Tan hard stiff clay
38.5-39ft Tan sand fg to vfg
39-40ft Tan hard stiff clay

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
Dia - 2" new pipe
Well - Plastic Sch 40 PVC
Screen - 10 of Sch 40 0.010 slotted screen 30' to 40'
Riser - Sch 40 PVC 0 to 30'

STATE OF TEXAS WELL REPORT for Tracking #267967

Owner:	**Commanding Officer US Naval Air Station**	Owner Well #:	**SRMW03**
Address:	**11001 D St., Suite 143** **Corpus Christi , TX 78419**	Grid #:	**83-21-5**
Well Location:	**2601 Saratoga Blvd.** **Corpus Christi , TX 78413**	Latitude:	**27° 41' 32" N**
Well County:	**Nueces**	Longitude:	**097° 25' 47" W**
Elevation:	**18 ft.**	GPS Brand Used:	**Surveyed**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date:	Started: **9/21/2011** Completed: **9/21/2011**
Diameter of Hole:	Diameter: **8.25 in From Surface To 29 ft**
Drilling Method:	**Hollow Stem Auger**
Borehole Completion:	Other: **20/40 sand pack**
Annular Seal Data:	1st Interval: **From 17 ft to 29 ft with Sand 6.5 bags (#sacks and material)** 2nd Interval: **From 2 ft to 17 ft with Chips 7 (#sacks and material)** 3rd Interval: **From 0 ft to 2 ft with cement 1 bag (#sacks and material)** Method Used: **Poured** Cemented By: **Stanley J. Grover Jr.** Distance to Septic Field or other Concentrated Contamination: **No Data** Distance to Property Line: **No Data** Method of Verification: **No Data** Approved by Variance: **No Data**
Surface Completion:	**Surface Sleeve Installed**

Water Level:	Static level: **17 ft. below land surface on 9/21/2011** Artesian flow: **No Data**
Packers:	**No packers used**
Plugging Info:	Casing or Cement/Bentonite left in well: **No Data**
Type Of Pump:	**No Data**
Well Tests:	**No Data**

Water Quality:	Type of Water: **No Data** Depth of Strata: **No Data** Chemical Analysis Made: **No Data** Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**
Certification Data:	The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**Gainco, Inc.** **P.O. Box 309** **Portland , TX 78374**
Driller License Number:	**54247**
Licensed Well Driller Signature:	**Stanley J. Grover Jr**
Registered Driller Apprentice	**No Data**

Signature:

Apprentice Registration Number: **No Data**

Comments: **No Data**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking number (Tracking **#267967**) on your written request.

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(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0-5 ft CLAY black, hard, dry, silty
5-10 ft grey tan CLAY very stiff slightly plastic, caliche less silty with depth.
10-15ft Grey CLAY very stiff slightly plastic, slightly silty dry to damp.
15-20ft CLAY AA SAND at bottom
20-21ft Grey SAND vfg silty with clay layers
21-22ft Tan grey CLAY hard.
22-28ft Grey SAND fg-mg loose silty
28-29ft Grey CLAY hard slightly plastic.

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
Dia - 2" new pipe
Well - Plastic Sch 40 PVC
Screen - 10 of Sch 40 0.010 slotted screen 19' to 29'
Riser - Sch 40 PVC 0 to 19'

STATE OF TEXAS PLUGGING REPORT for Tracking #77573

Owner:	Commanding Officer US NAS	Owner Well #:	ICMW1
Address:	11001 D St., Suite 143 Corpus Christi , TX 78419	Grid #:	83-21-5
Well Location:	2601 Saratoga Blvd. Corpus Christi , TX 78413	Latitude:	27° 41' 44" N
Well County:	Nueces	Longitude:	097° 26' 07" W
		GPS Brand Used:	Surveyed

Well Type: Monitor

HISTORICAL DATA ON WELL TO BE PLUGGED

Original Well Driller:	Stanley J. Grover Jr.
Driller's License Number of Original Well Driller:	54247
Date Well Drilled:	9/20/2011
Well Report Tracking Number:	267960
Diameter of Borehole:	8.25 inches
Total Depth of Borehole:	25 feet

Date Well Plugged:	9/24/2011
Person Actually Performing Plugging Operation:	Stanley J. Grover Jr
License Number of Plugging Operator:	54247
Plugging Method:	Pour in 3/8 bentonite chips when standing water in well is less than 100 feet in depth, cement top 2 feet.
Plugging Variance #:	No Data
Casing Left Data:	1st Interval: 2 inches diameter, From 5 ft to 25 ft 2nd Interval: No Data 3rd Interval: No Data
Cement/Bentonite Plugs Placed in Well:	1st Interval: From 2 ft to 25 ft; Sack(s)/type of cement used: 1 Bag of Bentonite 2nd Interval: From 0 ft to 2 ft; Sack(s)/type of cement used: 0.5 cement 3rd Interval: No Data 4th Interval: No Data 5th Interval: No Data

Certification Data:	The plug installer certified that the plug installer plugged this well (or the well was plugged under the plug installer's direct supervision) and that each and all of the statements herein are true and correct. The plug installer understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information:	Gainco, Inc P.O. Box 309 Portland , TX 78374
Plug Installer License Number:	54247
Licensed Plug Installer Signature:	Stanley J. Grover Jr
Registered Plug Installer Apprentice Signature:	Walter A. Georg
Apprentice Registration Number:	58691
Plugging Method Comments:	No Data

Please include the plugging report's tracking number (Tracking #77573) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

STATE OF TEXAS PLUGGING REPORT for Tracking #77575

Owner:	Commanding Officer US NAS	Owner Well #:	ICMW2
Address:	11001 D St., Suite 143 Corpus Christi , TX 78419	Grid #:	83-21-5
Well Location:	2601 Saratoga Blvd. Corpus Christi , TX 78413	Latitude:	27° 41' 41" N
Well County:	Nueces	Longitude:	097° 26' 07" W
		GPS Brand Used:	Surveyed

Well Type: Monitor

HISTORICAL DATA ON WELL TO BE PLUGGED

Original Well Driller:	Stanley J. Grover Jr.
Driller's License Number of Original Well Driller:	54247
Date Well Drilled:	9/20/2011
Well Report Tracking Number:	267961
Diameter of Borehole:	8.25 inches
Total Depth of Borehole:	20 feet

Date Well Plugged:	9/24/2011
Person Actually Performing Plugging Operation:	Stanley J. Grover Jr
License Number of Plugging Operator:	54247
Plugging Method:	Pour in 3/8 bentonite chips when standing water in well is less than 100 feet in depth, cement top 2 feet.
Plugging Variance #:	No Data
Casing Left Data:	1st Interval: No Data 2nd Interval: No Data 3rd Interval: No Data
Cement/Bentonite Plugs Placed in Well:	1st Interval: From 2 ft to 20 ft; Sack(s)/type of cement used: 1 Bag of Bentonite 2nd Interval: From 0 ft to 2 ft; Sack(s)/type of cement used: 0.5 cement 3rd Interval: No Data 4th Interval: No Data 5th Interval: No Data

Certification Data:	The plug installer certified that the plug installer plugged this well (or the well was plugged under the plug installer's direct supervision) and that each and all of the statements herein are true and correct. The plug installer understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information:	Gainco, Inc P.O. Box 309 Portland , TX 78374
Plug Installer License Number:	54247
Licensed Plug Installer Signature:	Stanley J. Grover Jr
Registered Plug Installer Apprentice Signature:	Walter A. Georg
Apprentice Registration Number:	58691
Plugging Method Comments:	No Data

Please include the plugging report's tracking number (Tracking #77575) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

STATE OF TEXAS PLUGGING REPORT for Tracking #77576

Owner:	Commanding Officer US NAS	Owner Well #:	ICMW3
Address:	11001 D St., Suite 143 Corpus Christi , TX 78419	Grid #:	83-21-5
Well Location:	2601 Saratoga Blvd. Corpus Christi , TX 78413	Latitude:	27° 41' 40" N
Well County:	Nueces	Longitude:	097° 26' 03" W
		GPS Brand Used:	Surveyed

Well Type: Monitor

HISTORICAL DATA ON WELL TO BE PLUGGED

Original Well Driller:	Stanley J. Grover Jr.
Driller's License Number of Original Well Driller:	54247
Date Well Drilled:	9/20/2011
Well Report Tracking Number:	267962
Diameter of Borehole:	8.25 inches
Total Depth of Borehole:	15 feet

Date Well Plugged:	9/24/2011
Person Actually Performing Plugging Operation:	Stanley J. Grover Jr
License Number of Plugging Operator:	54247
Plugging Method:	Pour in 3/8 bentonite chips when standing water in well is less than 100 feet in depth, cement top 2 feet.
Plugging Variance #:	No Data
Casing Left Data:	1st Interval: No Data 2nd Interval: No Data 3rd Interval: No Data
Cement/Bentonite Plugs Placed in Well:	1st Interval: From 2 ft to 15 ft; Sack(s)/type of cement used: 1 Bag of Bentonite 2nd Interval: From 0 ft to 2 ft; Sack(s)/type of cement used: 0.5 cement 3rd Interval: No Data 4th Interval: No Data 5th Interval: No Data

Certification Data:	The plug installer certified that the plug installer plugged this well (or the well was plugged under the plug installer's direct supervision) and that each and all of the statements herein are true and correct. The plug installer understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information:	Gainco, Inc P.O. Box 309 Portland , TX 78374
Plug Installer License Number:	54247
Licensed Plug Installer Signature:	Stanley J. Grover Jr
Registered Plug Installer Apprentice Signature:	Walter A. Georg
Apprentice Registration Number:	58691
Plugging Method Comments:	No Data

Please include the plugging report's tracking number (Tracking #77576) on your written request.

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P.O. Box 12157
Austin, TX 78711
(512) 463-7880

STATE OF TEXAS PLUGGING REPORT for Tracking #77577

Owner:	Commanding Officer US NAS	Owner Well #:	SRMW01
Address:	11001 D St., Suite 143 Corpus Christi , TX 78419	Grid #:	83-21-5
Well Location:	2601 Saratoga Blvd. Corpus Christi , TX 78413	Latitude:	27° 41' 31" N
Well County:	Nueces	Longitude:	097° 25' 49" W
		GPS Brand Used:	Surveyed

Well Type: Monitor

HISTORICAL DATA ON WELL TO BE PLUGGED

Original Well Driller:	Stanley J. Grover Jr.
Driller's License Number of Original Well Driller:	54247
Date Well Drilled:	9/21/2011
Well Report Tracking Number:	267964
Diameter of Borehole:	8.25 inches
Total Depth of Borehole:	30 feet

Date Well Plugged:	9/24/2011
Person Actually Performing Plugging Operation:	Stanley J. Grover Jr
License Number of Plugging Operator:	54247
Plugging Method:	Pour in 3/8 bentonite chips when standing water in well is less than 100 feet in depth, cement top 2 feet.
Plugging Variance #:	No Data
Casing Left Data:	1st Interval: No Data 2nd Interval: No Data 3rd Interval: No Data
Cement/Bentonite Plugs Placed in Well:	1st Interval: From 2 ft to 30 ft; Sack(s)/type of cement used: 1 Bag of Bentonite 2nd Interval: From 0 ft to 2 ft; Sack(s)/type of cement used: 0.5 cement 3rd Interval: No Data 4th Interval: No Data 5th Interval: No Data

Certification Data:	The plug installer certified that the plug installer plugged this well (or the well was plugged under the plug installer's direct supervision) and that each and all of the statements herein are true and correct. The plug installer understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information:	Gainco, Inc P.O. Box 309 Portland , TX 78374
Plug Installer License Number:	54247
Licensed Plug Installer Signature:	Stanley J. Grover Jr
Registered Plug Installer Apprentice Signature:	Walter A. Georg
Apprentice Registration Number:	58691
Plugging Method Comments:	No Data

Please include the plugging report's tracking number (Tracking #77577) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

STATE OF TEXAS PLUGGING REPORT for Tracking #77578

Owner:	Commanding Officer US NAS	Owner Well #:	SRMW02
Address:	11001 D St., Suite 143 Corpus Christi , TX 78419	Grid #:	83-21-5
Well Location:	2601 Saratoga Blvd. Corpus Christi , TX 78413	Latitude:	27° 41' 33" N
Well County:	Nueces	Longitude:	097° 25' 50" W
		GPS Brand Used:	Surveyed

Well Type: Monitor

HISTORICAL DATA ON WELL TO BE PLUGGED

Original Well Driller:	Stanley J. Grover Jr.
Driller's License Number of Original Well Driller:	54247
Date Well Drilled:	9/21/2011
Well Report Tracking Number:	267966
Diameter of Borehole:	8.25 inches
Total Depth of Borehole:	40 feet

Date Well Plugged:	9/24/2011
Person Actually Performing Plugging Operation:	Stanley J. Grover Jr
License Number of Plugging Operator:	54247
Plugging Method:	Pour in 3/8 bentonite chips when standing water in well is less than 100 feet in depth, cement top 2 feet.
Plugging Variance #:	No Data
Casing Left Data:	1st Interval: No Data 2nd Interval: No Data 3rd Interval: No Data
Cement/Bentonite Plugs Placed in Well:	1st Interval: From 2 ft to 40 ft; Sack(s)/type of cement used: 1 Bag of Bentonite 2nd Interval: From 0 ft to 2 ft; Sack(s)/type of cement used: 0.5 cement 3rd Interval: No Data 4th Interval: No Data 5th Interval: No Data

Certification Data:	The plug installer certified that the plug installer plugged this well (or the well was plugged under the plug installer's direct supervision) and that each and all of the statements herein are true and correct. The plug installer understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information:	Gainco, Inc P.O. Box 309 Portland , TX 78374
Plug Installer License Number:	54247
Licensed Plug Installer Signature:	Stanley J. Grover Jr
Registered Plug Installer Apprentice Signature:	Walter A. Georg
Apprentice Registration Number:	58691
Plugging Method Comments:	No Data

Please include the plugging report's tracking number (Tracking #77578) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

STATE OF TEXAS PLUGGING REPORT for Tracking #77579

Owner:	Commanding Officer US NAS	Owner Well #:	SRMW03
Address:	11001 D St., Suite 143 Corpus Christi , TX 78419	Grid #:	83-21-5
Well Location:	2601 Saratoga Blvd. Corpus Christi , TX 78413	Latitude:	27° 41' 32" N
Well County:	Nueces	Longitude:	097° 25' 47" W
		GPS Brand Used:	Surveyed

Well Type: Monitor

HISTORICAL DATA ON WELL TO BE PLUGGED

Original Well Driller:	Stanley J. Grover Jr.
Driller's License Number of Original Well Driller:	54247
Date Well Drilled:	9/21/2011
Well Report Tracking Number:	267967
Diameter of Borehole:	8.25 inches
Total Depth of Borehole:	29 feet

Date Well Plugged:	9/24/2011
Person Actually Performing Plugging Operation:	Stanley J. Grover Jr
License Number of Plugging Operator:	54247
Plugging Method:	Pour in 3/8 bentonite chips when standing water in well is less than 100 feet in depth, cement top 2 feet.
Plugging Variance #:	No Data
Casing Left Data:	1st Interval: No Data 2nd Interval: No Data 3rd Interval: No Data
Cement/Bentonite Plugs Placed in Well:	1st Interval: From 2 ft to 29 ft; Sack(s)/type of cement used: 1 Bag of Bentonite 2nd Interval: From 0 ft to 2 ft; Sack(s)/type of cement used: 0.5 cement 3rd Interval: No Data 4th Interval: No Data 5th Interval: No Data

Certification Data:	The plug installer certified that the plug installer plugged this well (or the well was plugged under the plug installer's direct supervision) and that each and all of the statements herein are true and correct. The plug installer understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information:	Gainco, Inc P.O. Box 309 Portland , TX 78374
Plug Installer License Number:	54247
Licensed Plug Installer Signature:	Stanley J. Grover Jr
Registered Plug Installer Apprentice Signature:	Walter A. Georg
Apprentice Registration Number:	58691
Plugging Method Comments:	No Data

Please include the plugging report's tracking number (Tracking #77579) on your written request.

Texas Department of Licensing & Regulation
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APPENDIX F

STATISTICS DATA TABLES AND CALCULATIONS

RELATIVE STANDARD DEVIATION
MULTI-INCREMENT SURFACE SOIL SAMPLES
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Analyte	IDSS0050001	IDSS0050001-A	IDSS0050001-B	IDSS0050001-C	IDSS0050001-D	IDSS0050001-E	Mean	S	RSD (%)
EXPLOSIVES:									
HMX	<0.0088	<0.0092	<0.0088	<0.0094	<0.0097	<0.0092	0	0	0
RDX	<0.0070	<0.0073	<0.0070	<0.0074	<0.0077	<0.0073	0	0	0
1,3,5-Trinitrobenzene	<0.0069	<0.0072	<0.0068	<0.0073	<0.0076	<0.0072	0	0	0
1,3-Dinitrobenzene	<0.0064	<0.0067	<0.0063	<0.0068	<0.0070	<0.0066	0	0	0
Tetryl	<0.0055	<0.0058	<0.0055	<0.0059	<0.0061	<0.0058	0	0	0
Nitrobenzene	<0.022	<0.024	<0.022	<0.024	<0.025	<0.024	0	0	0
2,4,6-Trinitrotoluene	<0.0069	<0.0072	<0.0068	<0.0073	<0.0076	<0.0072	0	0	0
4-Am-DNT	<0.017	<0.018	<0.017	<0.018	<0.019	<0.018	0	0	0
2-Am-DNT	<0.022	<0.022	<0.021	<0.023	<0.024	<0.022	0	0	0
2,6-Dinitrotoluene	<0.028	<0.029	<0.028	<0.030	<0.030	<0.029	0	0	0
2,4-Dinitrotoluene	<0.015	<0.016	<0.015	<0.016	<0.017	<0.016	0	0	0
2-Nitrotoluene	<0.012	<0.013	<0.012	<0.013	<0.014	<0.013	0	0	0
4-Nitrotoluene	<0.028	<0.029	<0.028	<0.030	<0.030	<0.029	0	0	0
3-Nitrotoluene	<0.0081	<0.0085	<0.0081	<0.0086	<0.0089	<0.0085	0	0	0
METALS:									
Aluminum	45500	47500	46000	42000	45500	46200	45450.00	1842.55	4.1
Antimony	0.16	0.28	0.25	<0.06	0.3	0.09	0.18	0.09	49.2
Arsenic	5.7	6	5.7	5.6	5.4	5.6	5.67	0.20	3.5
Barium	424	423	448	436	417	450	433.00	13.86	3.2
Beryllium	1.4	1.4	1.4	1.4	1.4	1.4	1.40	0	0.0
Cadmium	0.52	<0.01	<0.01	0.45	0.25	0.21	0.24	0.15	**63.3**
Chromium	28.3	31.5	31.5	25.8	28.6	29.4	29.18	2.16	7.4
Cobalt	6.1	6.6	6.6	6	6.2	6.4	6.32	0.26	4.1
Copper	16.2	15.6	15.8	14.9	15	15.3	15.47	0.50	3.2
Iron	21300	21500	20800	20300	21900	22400	21366.67	752.77	3.5
Lead	17.7	18.9	19.1	16.3	17.2	17.7	17.82	1.05	5.9
Magnesium	11200	11300	11200	10800	10700	10800	11000.00	260.77	2.4
Manganese	341	391	381	328	320	363	354.00	28.91	8.2
Mercury	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0	0.0
Nickel	14.8	15.6	16.1	14.5	14.8	14.6	15.07	0.64	4.2
Potassium	8820	9030	8930	8320	9010	9070	8863.33	280.55	3.2
Selenium	0.43	0.59	<0.25	0.24	0.34	<0.17	0.27	0.15	**55.7**
Silver	<0.02	<0.04	<0.04	<0.03	<0.03	<0.03	0.00	0	0.0
Sodium	8860	9050	9510	9410	9870	8790	9248.33	419.83	4.5
Thallium	<0.08	0.25	<0.13	<0.08	<0.08	<0.09	0.04	0.09	**225.4**
Tin	5	4	4.3	4.7	4.6	4.8	4.57	0.36	7.9
Vanadium	38.9	43	42.9	35.6	39.4	40.3	40.02	2.77	6.9
Zinc	77.8	76.3	74.4	72.1	79.5	81.8	76.98	3.50	4.5

<value - Nondetect

RSD = Relative Standard Deviation

RSD (%) =(s/mean)*100

Mean=(x1+x2+x3+…)/n

S (standard deviation)=sqrt{(x1-mean)^2+(x2-mean)^2+…)/(n-1)}

All results in milligrams per kilogram

APPENDIX F-2

SUMMARY OF DESCRIPTIVE STATISTICS - SOIL
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1

Parameter	Pos_detects	No_samples	Frequency of Detection	Minimum Detection	Maximum Detection	Location of Maximum Detection	Sample of Maximum Detection	Minimum Nondetect	Maximum Nondetect	Average of Positive Results	Overall Average	Standard Deviation
Explosives (mg/kg)												
1,3,5-TRINITROBENZENE	0	68	0/68					0.0061	0.05		0.0184	0.0100
1,3-DINITROBENZENE	0	68	0/68					0.0057	0.05		0.0183	0.0101
2,4,6-TRINITROTOLUENE	0	68	0/68					0.0061	0.05		0.0184	0.0100
2,4-DINITROTOLUENE	0	68	0/68					0.014	0.05		0.0197	0.0080
2,6-DINITROTOLUENE	0	68	0/68					0.025	0.05		0.0217	0.0050
2-AMINO-4,6-DINITROTOLUENE	0	68	0/68					0.019	0.05		0.0207	0.0065
2-NITROTOLUENE	0	68	0/68					0.011	0.05		0.0192	0.0087
3-NITROTOLUENE	0	68	0/68					0.0072	0.05		0.0186	0.0097
4-AMINO-2,6-DINITROTOLUENE	0	68	0/68					0.016	0.05		0.0201	0.0075
4-NITROTOLUENE	0	68	0/68					0.025	0.05		0.0217	0.0050
HMX	0	68	0/68					0.0079	0.05		0.0187	0.0095
NITROBENZENE	0	68	0/68					0.02	0.05		0.0209	0.0063
RDX	0	68	0/68					0.0062	0.05		0.0184	0.0100
TETRYL	0	68	0/68					0.0049	0.05		0.0182	0.0103
Inorganics (mg/kg)												
ALUMINUM	68	68	68/68	2810 H	47500	ID-SS005A	ID-SS0050001A			13946.3235	13946.3235	12207.4750
ANTIMONY	20	54	20/54	0.06 J	37 J	ID-SS07	ID-SS07	0.05	1.4	4.2995	1.6970	5.5257
ARSENIC	68	68	68/68	1.6 J	20	ID-SS07	ID-SS07			4.7096	4.7096	3.2663
BARIUM	68	68	68/68	18.4 J	834	ID-SS07B	ID-SS07B			204.9647	204.9647	166.0780
BERYLLIUM	68	68	68/68	0.13 L	1.4	ID-SS005B	ID-SS0050001B			0.5687	0.5687	0.3396
BERYLLIUM	68	68	68/68	0.13 L	1.4	ID-SS005	ID-SS0050001			0.5687	0.5687	0.3396
BERYLLIUM	68	68	68/68	0.13 L	1.4	ID-SS005E	ID-SS0050001E			0.5687	0.5687	0.3396
BERYLLIUM	68	68	68/68	0.13 L	1.4	ID-SS005C	ID-SS0050001C			0.5687	0.5687	0.3396
BERYLLIUM	68	68	68/68	0.13 L	1.4	ID-SS005A	ID-SS0050001A			0.5687	0.5687	0.3396
BERYLLIUM	68	68	68/68	0.13 L	1.4	ID-SS005D	ID-SS0050001D			0.5687	0.5687	0.3396
CADMIUM	62	68	62/68	0.04 J	250	ID-SS04D	ID-SS04D	0.006	0.122	12.9353	11.7946	36.5562
CALCIUM	53	53	53/53	1720 J	83300 J	ID-SB01	ID-SB0010507			30976.6038	30976.6038	21262.6824
CHROMIUM	68	68	68/68	2.8	249	ID-SS04D	ID-SS04D			20.8551	20.8551	34.2367
COBALT	68	68	68/68	1 J	18.1	ID-SS07B	ID-SS07B			3.8522	3.8522	2.2525
COPPER	68	68	68/68	1.3 J	1570	ID-SS07	ID-SS07			118.9412	118.9412	301.2950
IRON	68	68	68/68	2220 H	77600	ID-SS04D	ID-SS04D			13639.1176	13639.1176	12933.8815
LEAD	68	68	68/68	2.7 J	4570 L	ID-SS04D	ID-SS04D			250.3559	250.3559	799.4359
MAGNESIUM	68	68	68/68	765 J	11300	ID-SS005A	ID-SS0050001A			4026.0515	4026.0515	2631.2998
MANGANESE	68	68	68/68	22.1 J	1630	ID-SS04	ID-SS04			328.6750	328.6750	278.6953
MERCURY	58	68	58/68	0.0061	0.16	ID-SS07C	ID-SS07C	0.005	0.02	0.0364	0.0317	0.0302
NICKEL	68	68	68/68	2 J	121	ID-SS04D	ID-SS04D			10.9544	10.9544	14.8224
POTASSIUM	68	68	68/68	713 J	9070	ID-SS005E	ID-SS0050001E			3327.7353	3327.7353	2217.9985
SELENIUM	51	68	51/68	0.24 J	40.4	ID-SS04D	ID-SS04D	0.12	0.42	4.4125	3.3348	5.6361
SILVER	49	68	49/68	0.05 J	3.5 L	ID-SS04	ID-SS04	0.02	0.58	0.7551	0.5588	0.6905
SODIUM	68	68	68/68	31.8 L	9870	ID-SS005D	ID-SS0050001D			1192.0265	1192.0265	2646.5463
THALLIUM	7	68	7/68	0.09 J	0.33 J	ID-SB01	ID-SB0011214	0.05	2.7	0.2004	0.2593	0.1811
TIN	0	15	0/15					3.3	5		2.0567	0.2672
VANADIUM	68	68	68/68	4.6 L	43	ID-SS005A	ID-SS0050001A			16.5838	16.5838	9.1434
ZINC	68	68	68/68	7.6	7230	ID-SS07	ID-SS07			531.4338	531.4338	1116.5567
Miscellaneous Parameter (mg/kg)												
PERCHLORATE	16	23	16/23	0.000733 J	0.0035	ID-SS12	ID-SS12	0.000546	0.000674	0.0014	0.0011	0.0008
Polynuclear Aromatic Hydrocarbons (mg/kg)												
ACENAPHTHENE	4	15	4/15	0.0245 J	0.0569	ID-SS07C	ID-SS07C	0.0128	0.0161	0.0313	0.0136	0.0137
ACENAPHTHYLENE	2	15	2/15	0.0232 J	0.0605	ID-SS07D	ID-SS07D	0.0112	0.0162	0.0377	0.0106	0.0140
ANTHRACENE	8	15	8/15	0.0112 J	0.114	ID-SS07C	ID-SS07C	0.00815	0.00897	0.0406	0.0236	0.0305
BENZO(A)ANTHRACENE	10	15	10/15	0.0199 J	0.219	ID-SS07C	ID-SS07C	0.0122	0.0145	0.1004	0.0691	0.0800
BENZO(A)PYRENE	12	15	12/15	0.0129 J	0.28	ID-SS07D	ID-SS07D	0.0118	0.0127	0.1284	0.1040	0.1101
BENZO(B)FLUORANTHENE	14	15	14/15	0.0226 J	0.66	ID-SS07D	ID-SS07D	0.0122	0.0127	0.1994	0.1865	0.2057
BENZO(G,H,I)PERYLENE	7	15	7/15	0.0514 J	1.16	ID-SS07B	ID-SS07B	0.0118	0.0135	0.3361	0.1602	0.2990
BENZO(K)FLUORANTHENE	4	15	4/15	0.021 J	0.17 J	ID-BG-SS09	BG-ID-SS09-D	0.0112	0.0162	0.0729	0.0242	0.0448
CHRYSENE	14	15	14/15	0.0144 J	0.251	ID-SS07D	ID-SS07D	0.0122	0.0127	0.1009	0.0946	0.0941
DIBENZO(A,H)ANTHRACENE	0	15	0/15					0.0112	0.0162		0.0064	0.0006
FLUORANTHENE	15	15	15/15	0.0125 J	0.508	ID-SS07C	ID-SS07C	0.0127	0.0127	0.1385	0.1385	0.1672
FLUORENE	5	15	5/15	0.0135 J	0.0557	ID-SS07C	ID-SS07C	0.0118	0.0145	0.0255	0.0128	0.0130
INDENO(1,2,3-CD)PYRENE	7	15	7/15	0.087 J	0.269	ID-SS07D	ID-SS07D	0.0118	0.0135	0.1857	0.0901	0.1023
NAPHTHALENE	3	15	3/15	0.0208 J	0.0381 J	ID-SS07C	ID-SS07C	0.0112	0.0145	0.0244	0.0099	0.0088
PHENANTHRENE	9	15	9/15	0.0129 J	0.415	ID-SS07C	ID-SS07C	0.0118	0.0135	0.1260	0.0781	0.1191
PYRENE	14	15	14/15	0.0146 J	0.403	ID-SS07C	ID-SS07C	0.0128	0.0133	0.1303	0.1220	0.1392

APPENDIX F-3

SUMMARY OF DESCRIPTIVE STATISTICS - GROUNDWATER
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1

Parameter	Pos_detects	No_samples	Frequency of Detection	Minimum Detection		Maximum Detection		Location of Maximum Detection	Sample of Maximum Detection	Minimum Nondetect	Maximum Nondetect	Average of Positive Results	Overall Average	Standard Deviation
EXPLOSIVES (MG/L)														
1,3,5-TRINITROBENZENE	0	3	0/3							0.00004	0.00004		0.00002	0
1,3-DINITROBENZENE	0	3	0/3							0.00004	0.00004		0.00002	0
2,4,6-TRINITROTOLUENE	0	3	0/3							0.00006	0.00006		0.00003	0
2,4-DINITROTOLUENE	0	3	0/3							0.00005	0.00005		0.000025	0
2,6-DINITROTOLUENE	0	3	0/3							0.00005	0.00005		0.000025	0
2-AMINO-4,6-DINITROTOLUENE	0	3	0/3							0.00003	0.00003		0.000015	0
2-NITROTOLUENE	0	3	0/3							0.00007	0.00007		0.000035	0
3-NITROTOLUENE	0	3	0/3							0.00006	0.00006		0.00003	0
4-AMINO-2,6-DINITROTOLUENE	0	3	0/3							0.00005	0.00005		0.000025	0
4-NITROTOLUENE	0	3	0/3							0.00006	0.00006		0.00003	0
HMX	0	3	0/3							0.00004	0.00004		0.00002	0
NITROBENZENE	0	3	0/3							0.00007	0.00007		0.000035	0
RDX	0	3	0/3							0.00004	0.00004		0.00002	0
TETRYL	0	3	0/3							0.00006	0.00006		0.00003	0
INORGANICS (MG/L)														
ALUMINUM	2	3	2/3	0.503	J	0.592	J	ID-GW01	ID-GW001MW-D	0.37	0.37	0.44575	0.358833	0.161062359
ANTIMONY	1	3	1/3	0.0428	J	0.0428	J	ID-GW01	ID-GW001MW-D	0.032	0.032	0.0294	0.020466	0.007736494
ARSENIC	0	3	0/3							0.03575	0.0391		0.018433	0.000967062
BARIUM	3	3	3/3	0.0422	J	0.0774	J	ID-GW02	ID-GW002MW			0.061866	0.061866	0.015600427
BERYLLIUM	1	3	1/3	0.0041	J	0.0041	J	ID-GW01	ID-GW001MW	0.0025	0.0028	0.002675	0.001775	0.000783023
CADMIUM	1	3	1/3	0.0014	J	0.0014	J	ID-GW01	ID-GW001MW	0.00125	0.00125	0.001013	0.000754	0.000224012
CALCIUM	3	3	3/3	230		1100		ID-GW03	ID-GW003MW			578.5	578.5	459.7942475
CHROMIUM	0	3	0/3							0.009	0.009		0.0045	5.82077E-11
COBALT	1	3	1/3	0.017	J	0.017	J	ID-GW03	ID-GW003MW	0.006	0.006	0.017	0.007666	0.008082904
COPPER	1	3	1/3	0.0178	J	0.0178	J	ID-GW02	ID-GW002MW	0.01575	0.01575	0.0178	0.011183	0.005730201
IRON	2	3	2/3	0.142	J	0.233	J	ID-GW03	ID-GW003MW	0.1355	0.1355	0.1875	0.147583	0.082766363
LEAD	1	3	1/3	0.029	J	0.029	J	ID-GW02	ID-GW002MW	0.02675	0.02675	0.029	0.018583	0.009021098
MAGNESIUM	3	3	3/3	110		544		ID-GW03	ID-GW003MW			272.666666	272.666666	236.307709
MANGANESE	3	3	3/3	0.141		3.68		ID-GW03	ID-GW003MW			1.656333	1.656333	1.821246917
MERCURY	0	3	0/3							0.00001	0.0001		0.000012	1.32791E-05
NICKEL	2	3	2/3	0.0107	J	0.018	J	ID-GW03	ID-GW003MW	0.007	0.007	0.01435	0.010733	0.007250057
POTASSIUM	3	3	3/3	6.95	J	97.7	J	ID-GW03	ID-GW003MW			51.358333	51.358333	41.08920428
SELENIUM	0	3	0/3							0.059	0.059		0.0295	0
SILVER	0	3	0/3							0.00675	0.00675		0.003375	0
SODIUM	3	3	3/3	1800		5390		ID-GW03	ID-GW003MW			3470	3470	1808.009956
THALLIUM	0	3	0/3							0.02675	0.0268		0.013383	1.44338E-05
TIN	0	3	0/3							0.00275	0.0275		0.011687	0.003572066
VANADIUM	2	3	2/3	0.0188	J	0.0359	J	ID-GW01	ID-GW001MW-D	0.00575	0.00575	0.0254	0.017891	0.014583731
ZINC	0	3	0/3							0.018	0.0258		0.0109	0.001817278
MISCELLANEOUS PARAMETERS (MG/L)														
PERCHLORATE	0	3	0/3							0.000082	0.000082		0.000041	0

APPENDIX F-4

SUMMARY OF DESCRIPTIVE STATISTICS - SOIL
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Parameter	Pos_detects	No_samples	Frequency of Detection	Minimum Detection	Maximum Detection	Location of Maximum Detection	Sample of Maximum Detection	Minimum Nondetect	Maximum Nondetect	Average of Positive Results	Overall Average	Standard Deviation
Explosives (mg/kg)												
1,3,5-TRINITROBENZENE	0	1	0/1					0.05	0.05		0.025	
1,3-DINITROBENZENE	0	1	0/1					0.05	0.05		0.025	
2,4,6-TRINITROTOLUENE	0	1	0/1					0.05	0.05		0.025	
2,4-DINITROTOLUENE	0	1	0/1					0.05	0.05		0.025	
2,6-DINITROTOLUENE	0	1	0/1					0.05	0.05		0.025	
2-AMINO-4,6-DINITROTOLUENE	0	1	0/1					0.05	0.05		0.025	
2-NITROTOLUENE	0	1	0/1					0.05	0.05		0.025	
3-NITROTOLUENE	0	1	0/1					0.05	0.05		0.025	
4-AMINO-2,6-DINITROTOLUENE	0	1	0/1					0.05	0.05		0.025	
4-NITROTOLUENE	0	1	0/1					0.05	0.05		0.025	
HMX	0	1	0/1					0.05	0.05		0.025	
NITROBENZENE	0	1	0/1					0.05	0.05		0.025	
RDX	0	1	0/1					0.05	0.05		0.025	
TETRYL	0	1	0/1					0.05	0.05		0.025	
Inorganics (mg/kg)												
ALUMINUM	1	1	1/1	10800	10800	SR-SS17	SR-SS17			10800	10800	
ANTIMONY	2	2	2/2	0.2 L	0.32 L	SR-SS08	SR-SS08			0.26	0.26	8.49E-02
ARSENIC	15	15	15/15	3.5	7.9	SR-SS08	SR-SS08			5.013333	5.013333	1.363224469
BARIUM	1	1	1/1	130	130	SR-SS17	SR-SS17			130	130	
BERYLLIUM	1	1	1/1	0.59	0.59	SR-SS17	SR-SS17			0.59	0.59	
CADMIUM	1	1	1/1	0.17	0.17	SR-SS17	SR-SS17			0.17	0.17	
CALCIUM	1	1	1/1	28800	28800	SR-SS17	SR-SS17			28800	28800	
CHROMIUM	1	1	1/1	8	8	SR-SS17	SR-SS17			8	8	
COBALT	1	1	1/1	3.9 J	3.9 J	SR-SS17	SR-SS17			3.9	3.9	
COPPER	15	15	15/15	7.7 J	14.2 L	SR-SS10	SR-SS10			11.33	11.33	1.702707927
IRON	1	1	1/1	6180	6180	SR-SS17	SR-SS17			6180	6180	
LEAD	15	15	15/15	12.8	476 J	SR-SS08	SR-SS08			70.3	70.3	114.533038
MAGNESIUM	1	1	1/1	3220	3220	SR-SS17	SR-SS17			3220	3220	
MANGANESE	1	1	1/1	248 J	248 J	SR-SS17	SR-SS17			248	248	
MERCURY	1	1	1/1	0.027	0.027	SR-SS17	SR-SS17			0.027	0.027	
NICKEL	1	1	1/1	6.5	6.5	SR-SS17	SR-SS17			6.5	6.5	
POTASSIUM	1	1	1/1	2900	2900	SR-SS17	SR-SS17			2900	2900	
SELENIUM	1	1	1/1	2.2	2.2	SR-SS17	SR-SS17			2.2	2.2	
SILVER	1	1	1/1	0.21	0.21	SR-SS17	SR-SS17			0.21	0.21	
SODIUM	1	1	1/1	116	116	SR-SS17	SR-SS17			116	116	
THALLIUM	0	1	0/1					0.562	0.562		0.281	
VANADIUM	1	1	1/1	14 J	14 J	SR-SS17	SR-SS17			14	14	
ZINC	15	15	15/15	42.1	107	SR-SS10	SR-SS10			77.506666	77.506666	16.80962593
Miscellaneous Parameter (mg/kg)												
PERCHLORATE	1	1	1/1	0.0239	0.0239	SR-SS17	SR-SS17			0.0239	0.0239	
Polynuclear Aromatic Hydrocarbons (mg/kg)												
1-METHYLNAPHTHALENE	14	54	14/54	0.0042 J	0.055	SR-SS22C	SR-SS022C0001	0.0018	0.2	0.0135	0.006358	0.015701329
2-METHYLNAPHTHALENE	15	54	15/54	0.0061 J	0.072	SR-SS22C	SR-SS022C0001	0.0023	0.3	0.018706	0.008974	2.31E-02
ACENAPHTHENE	44	68	44/68	0.0022 J	7.29	SR-SS05	SR-SS05	0.0016	0.0415	0.27032	0.17617	0.886758499
ACENAPHTHYLENE	1	68	1/68	0.16	0.16	SR-SS04	SR-SS04	0.0012	3.99	0.16	0.042005	0.243643661
ANTHRACENE	54	68	54/68	0.0015 J	18.5	SR-SS05	SR-SS05	0.0012	0.0415	0.499743	0.397461	2.244020946
BENZO(A)ANTHRACENE	64	68	64/68	0.0067 J	158	SR-SS05	SR-SS05	0.0122	0.0127	4.539478	4.272816	19.40598411
BENZO(A)PYRENE	66	68	66/68	0.008 J	187	SR-SS05	SR-SS05	0.004	0.0124	5.701398	5.53383	23.25678733
BENZO(B)FLUORANTHENE	66	68	66/68	0.011 J	323	SR-SS05	SR-SS05	0.0028	0.003	9.082085	8.815008	39.71761614
BENZO(G,H,I)PERYLENE	66	68	66/68	0.005 J	113	SR-SS05	SR-SS05	0.003	0.0124	3.344686	3.246426	13.98151489
BENZO(K)FLUORANTHENE	52	67	52/67	0.0054 J	28 J	SR-SS08	SR-SS08	0.0037	3.99	1.450215	1.163768	3.617252326
CHRYSENE	65	68	65/68	0.0079 J	171	SR-SS05	SR-SS05	0.002	0.0124	5.013331	4.792275	21.0716769
DIBENZO(A,H)ANTHRACENE	51	68	51/68	0.003 J	2.5	SR-SS22C	SR-SS022C0001	0.0019	3.99	0.273948	0.243616	0.483791943
FLUORANTHENE	67	68	67/68	0.0045 J	273	SR-SS05	SR-SS05	0.002	0.0123	6.596688	6.499693	33.2267551
FLUORENE	25	68	25/68	0.004 J	2.51 J	SR-SS05	SR-SS05	0.0033	0.4	0.159625	0.067664	0.306637871
INDENO(1,2,3-CD)PYRENE	66	68	66/68	0.0084 J	98.2	SR-SS05	SR-SS05	0.002	0.0124	3.410676	3.310468	12.23284376
NAPHTHALENE	36	68	36/68	0.0031 J	5.98	SR-SS05	SR-SS05	0.0027	0.399	0.276175	0.152898	0.728685923
PHENANTHRENE	61	68	61/68	0.0029 J	85.7	SR-SS05	SR-SS05	0.002	0.027	2.111766	1.894908	10.41382703
PYRENE	66	68	66/68	0.0066 J	239	SR-SS05	SR-SS05	0.003	0.0129	6.060073	5.881952	29.12280204

SUMMARY OF DESCRIPTIVE STATISTICS - GROUNDWATER
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Parameter	Pos_detects	No_samples	Frequency of Detection	Minimum Detection	Maximum Detection	Location of Maximum Detection	Sample of Maximum Detection	Minimum Nondetect	Maximum Nondetect	Average of Positive Results	Overall Average	Standard Deviation
POLYCYCLIC AROMATIC HYDROCARBONS (MG/L)												
1-METHYLNAPHTHALENE	0	3	0/3					0.00006	0.00006		0.00003	0
2-METHYLNAPHTHALENE	0	3	0/3					0.00007	0.00007		0.000035	0
ACENAPHTHENE	0	3	0/3					0.00006	0.00006		0.00003	0
ACENAPHTHYLENE	0	3	0/3					0.00005	0.00005		0.000025	0
ANTHRACENE	0	3	0/3					0.00004	0.00004		0.00002	0
BENZO(A)ANTHRACENE	0	3	0/3					0.00004	0.00004		0.00002	0
BENZO(A)PYRENE	0	3	0/3					0.00006	0.00006		0.00003	0
BENZO(B)FLUORANTHENE	0	3	0/3					0.00008	0.00008		0.00004	0
BENZO(G,H,I)PERYLENE	0	3	0/3					0.00006	0.00006		0.00003	0
BENZO(K)FLUORANTHENE	0	3	0/3					0.00004	0.00004		0.00002	0
CHRYSENE	1	3	1/3	0.00004 J	0.00004 J	SR-MW01	SR-MW01	0.00003	0.00003	0.000028	0.000019	7.50555E-06
DIBENZO(A,H)ANTHRACENE	0	3	0/3					0.00006	0.00006		0.00003	0
FLUORANTHENE	0	3	0/3					0.00006	0.00007		0.000031	2.88675E-06
FLUORENE	0	3	0/3					0.00005	0.00005		0.000025	0
INDENO(1,2,3-CD)PYRENE	0	3	0/3					0.00004	0.00005		0.000021	2.88675E-06
NAPHTHALENE	0	3	0/3					0.00006	0.00006		0.00003	0
PHENANTHRENE	0	3	0/3					0.00004	0.00004		0.00002	0
PYRENE	0	3	0/3					0.00005	0.00005		0.000025	0

APPENDIX G

PHOTOGRAPHIC LOG

Photographic Documentation
Remedial Investigation
NALF Cabaniss, Corpus Christi, Texas

PHOTO 1 **DATE:** 9/20/11 **DIRECTION:** Northwest **TAKEN BY:** Larry Basilio **DESCRIPTION:** DPT drilling at Incinerator Disposal Site MW-01.	
PHOTO 2 **DATE:** 9/20/11 **DIRECTION:** N/A **TAKEN BY:** Larry Basilio **DESCRIPTION:** UXO Technician using downhole magnetometer to check for subsurface munitions ahead of the drilling rig at Incinerator Disposal Site MW-01.	

Photographic Documentation
Remedial Investigation
NALF Cabaniss, Corpus Christi, Texas

PHOTO 3 **DATE:** 9/22/11 **DIRECTION:** North **TAKEN BY:** Larry Basilio **DESCRIPTION:** Low flow sampling of groundwater monitoring well MW-01 at the Incinerator Disposal Site.	
PHOTO 4 **DATE:** 9/24/11 **DIRECTION:** North **TAKEN BY:** Larry Basilio **DESCRIPTION:** Incinerator Disposal Site monitoring well MW-01 location after plugging and abandoning.	

APPENDIX H

DATEBASE SEARCH RECORDS

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

ASTM 1527-05/AAI Compliant

The Banks Regulatory Database Report™

Friday, December 02, 2011

Client
TETRA TECH NUS, INC.
2901 Wilcrest Drive
Ste 405
Houston, TX 77042

Target Property
NALF Cabaniss
Corpus Christi, TX
ES#: 87845
PO#: 1079460

1601 Rio Grande Suite 500 Austin, Texas 78701
PH 512.478.0059 FAX 512.478.1433 E-mail banks@banksinfo.com

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Table of Contents

NALF Cabaniss

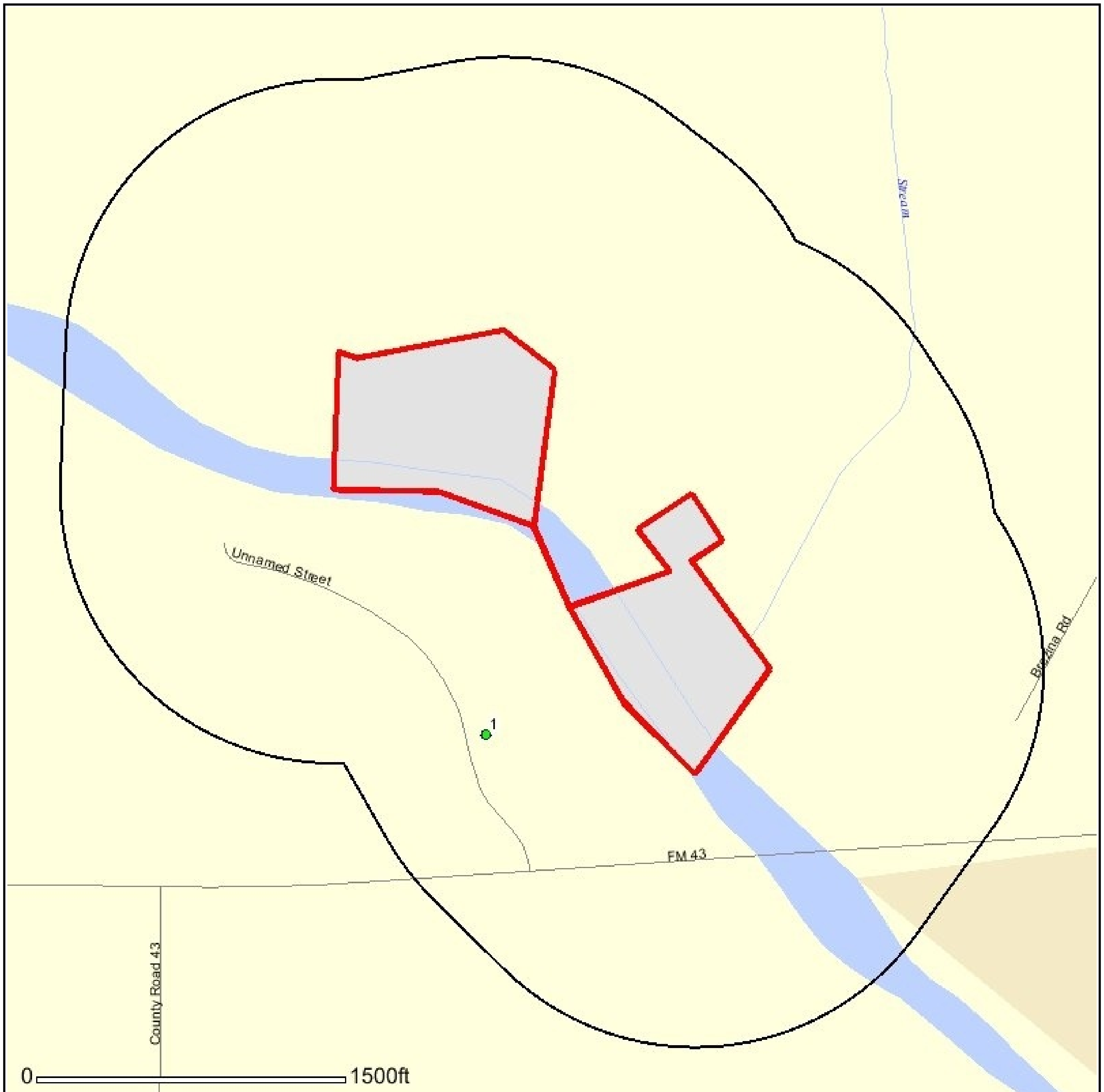
BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP	Database Summary	NALF Cabaniss

Databases Searched	Distance Searched	# Mapped	# Not Mapped	Total
Federal - ASTM 1527-05/AAI Required				
National Priority List (NPL)	1.000	0	0	0
Delisted National Priority List (DNPL)	0.500	0	0	0
CERCLIS (CER)	0.500	0	0	0
CERCLIS NFRAP (CER NFRAP)	0.500	0	0	0
RCRA CORRACTS (RCRA COR)	1.000	1	0	1
RCRA non-CORRACTS TSD (RCRA TSD)	0.500	1	0	1
RCRA Generators (RCRA GEN)	0.250	0	0	0
Federal Brownfields (FED BWN)	0.500	0	0	0
Federal Institutional Control (FED IC)	0.500	0	0	0
Federal Engineering Control (FED EC)	0.500	0	0	0
ERNS List (ERNS)	0.250	0	0	0
State - ASTM 1527-05/AAI Required				
State/Tribal Equivalent NPL (ST NPL)	1.000	0	0	0
State/Tribal Equivalent CERCLIS (ST CER)	0.500	0	0	0
State/Tribal Disposal or Landfill (SWLF)	0.500	0	0	0
State/Tribal Leaking Storage Tank (LPST)	0.500	2	0	2
State/Tribal Storage Tank (PST)	0.250	0	0	0
State/Tribal Institutional Control (ST IC)	0.250	0	0	0
State/Tribal Engineering Control (ST EC)	0.500	0	0	0
State/Tribal Voluntary Cleanup (VCP)	0.500	0	0	0
State/Tribal Brownfield (ST BWN)	0.500	0	0	0
Non-ASTM/AAI Required Databases				
RCRA (RCRA)	0.250	0	0	0
Dry Cleaners (DRYC)	0.250	0	0	0
Industrial Hazardous Waste (IHW)	0.250	1	0	1
Total Sites Found		**5**	**0**	**5**

0.25 Mile Buffer Summary Map

NALF Cabaniss

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP



Target Site

Single Site Cluster Site Large Tract Cluster Site with Large Tract
RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF

Single Site Cluster Site Large Tract Cluster Site with Large Tract
RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER

Single Site Cluster Site Large Tract Cluster Site with Large Tract
ERNS, IHW, RCRA, DRYC, AIRS

Limited Access Hwy
Primary Highway
Secondary Highway
Roads
Ramps
Railroad
County
State
Urban Area
Water Bodies

One inch = 0.15 miles

N

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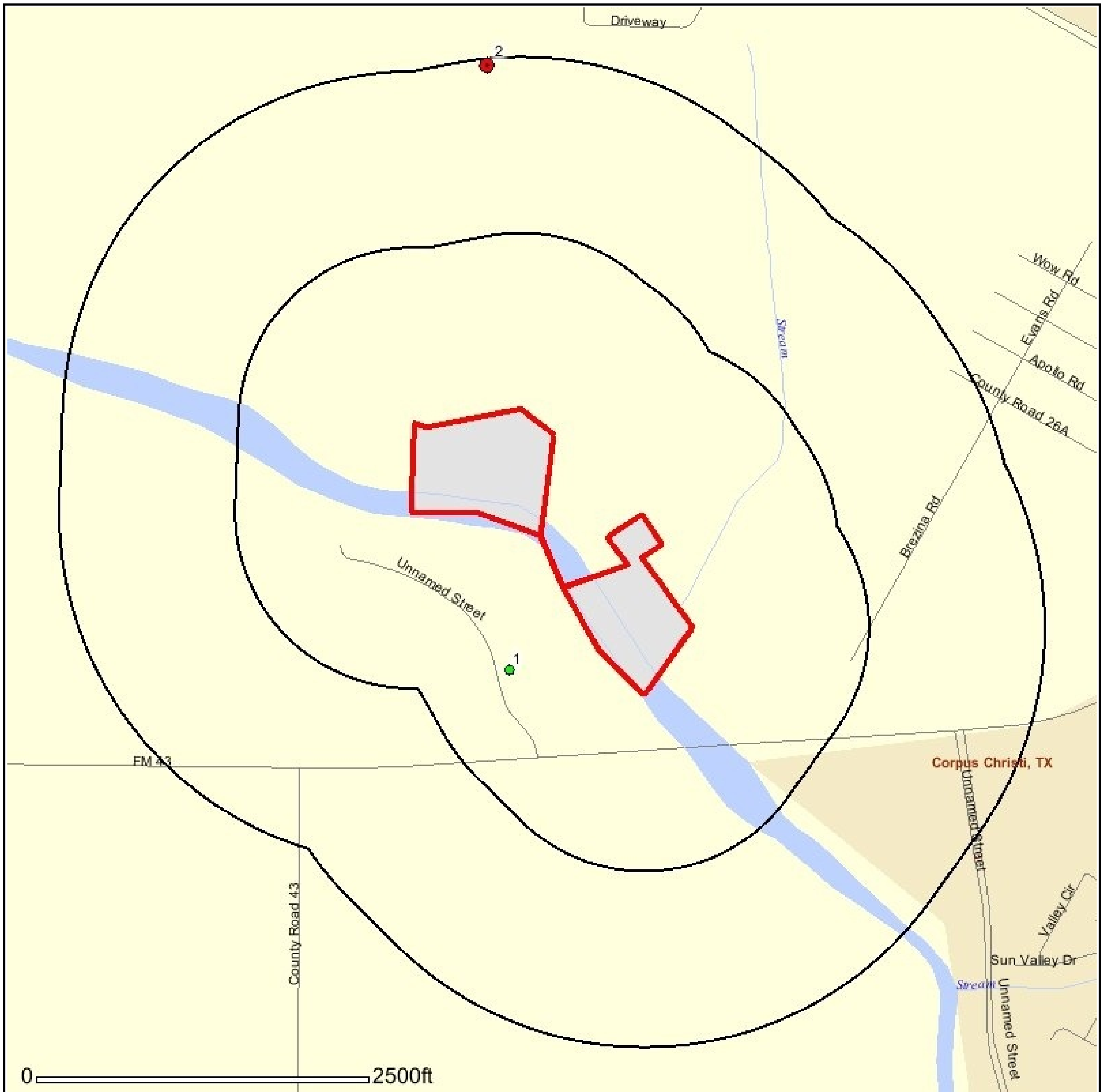
banks@banksinfo.com
www.banksinfo.com

0.5 Mile Buffer Summary Map

NALF Cabaniss



Target Site

Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract
RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF

Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract
RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER

Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract
ERNS, IHW, RCRA, DRYC, AIRS

Limited Access Hwy | Railroad
Primary Highway | County
Secondary Highway | State
Roads | Urban Area
Ramps | Water Bodies

One inch = 0.24 miles

N

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1 Mile Buffer Summary Map

NALF Cabaniss

BANKS ENVIRONMENTAL DATA
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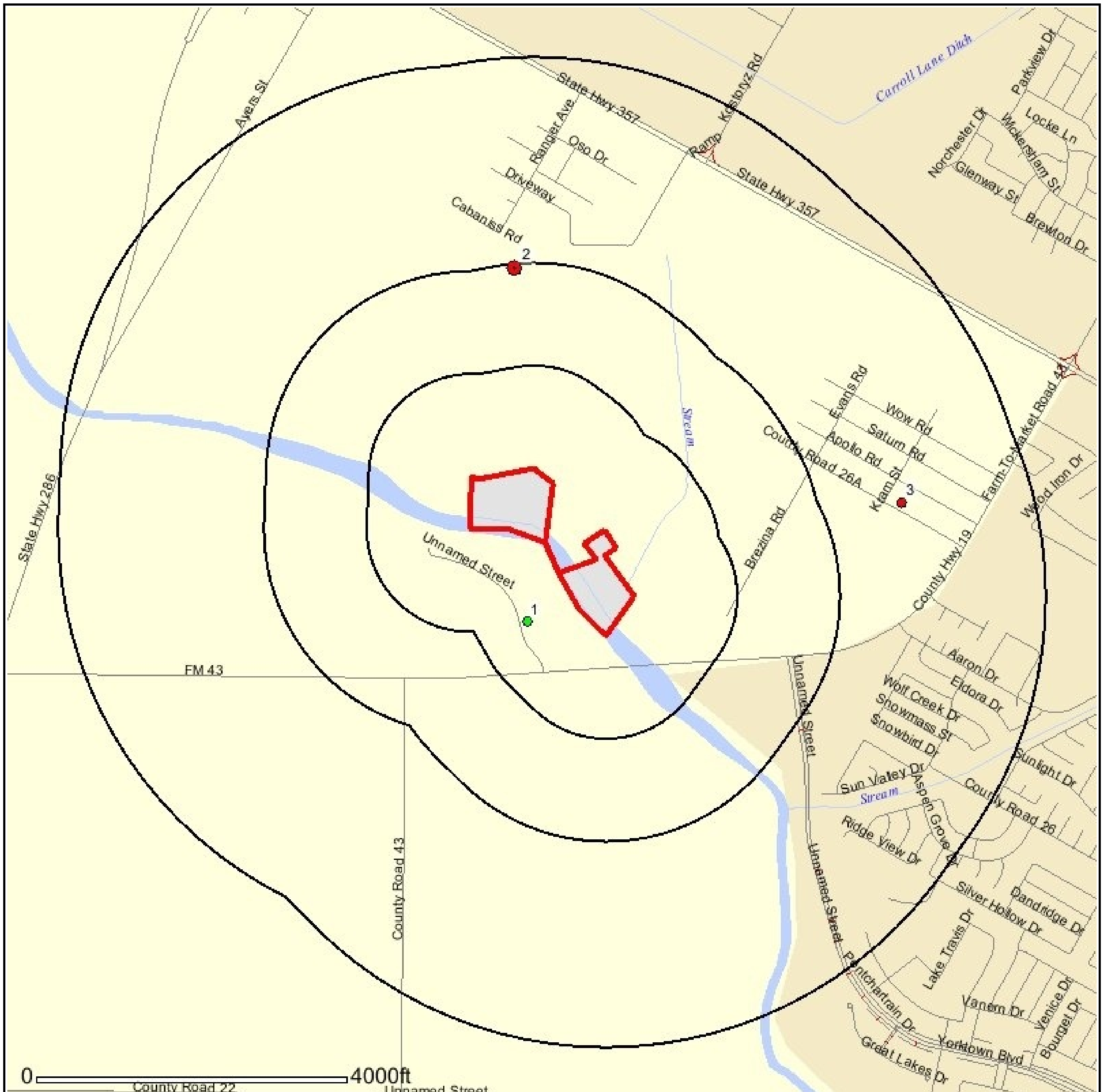

★ Target Site

Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract
RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF

Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract
RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER

Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract
ERNS, IHW, RCRA, DRYC, AIRS

Limited Access Hwy
Primary Highway
Secondary Highway
Roads
Ramps
Railroad
County
State
Urban Area
Water Bodies

One inch = 0.41 miles

N

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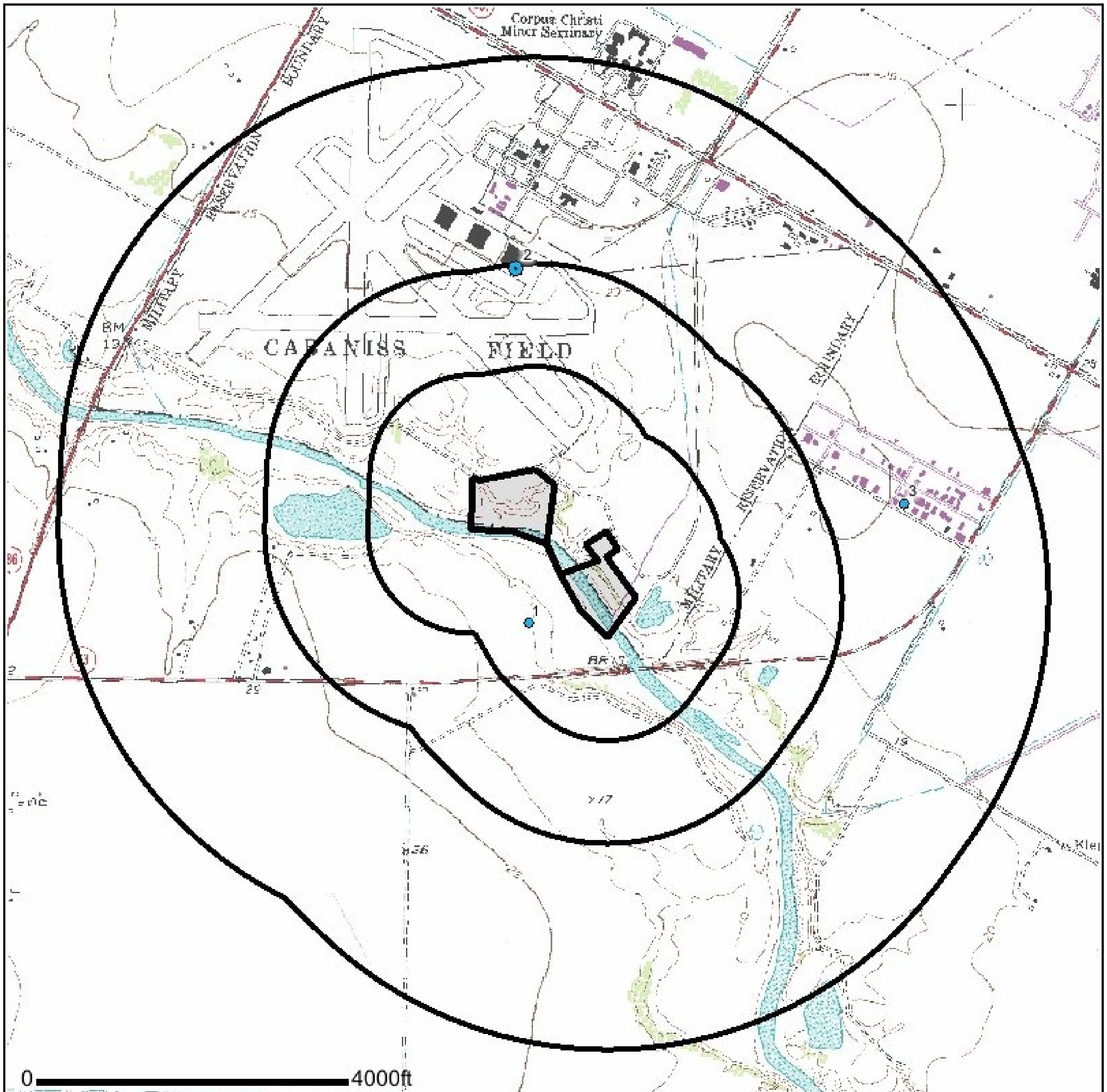
Topographic Overlay Map - 1 Mile Buffer

NALF Cabaniss



One inch = 0.41 miles

Oso Creek NW (1975)

Subject Site
Site
Cluster
Large Tract
Cluster Site with Large Tract
Existing Road
State Line
County Line
Unimproved Road

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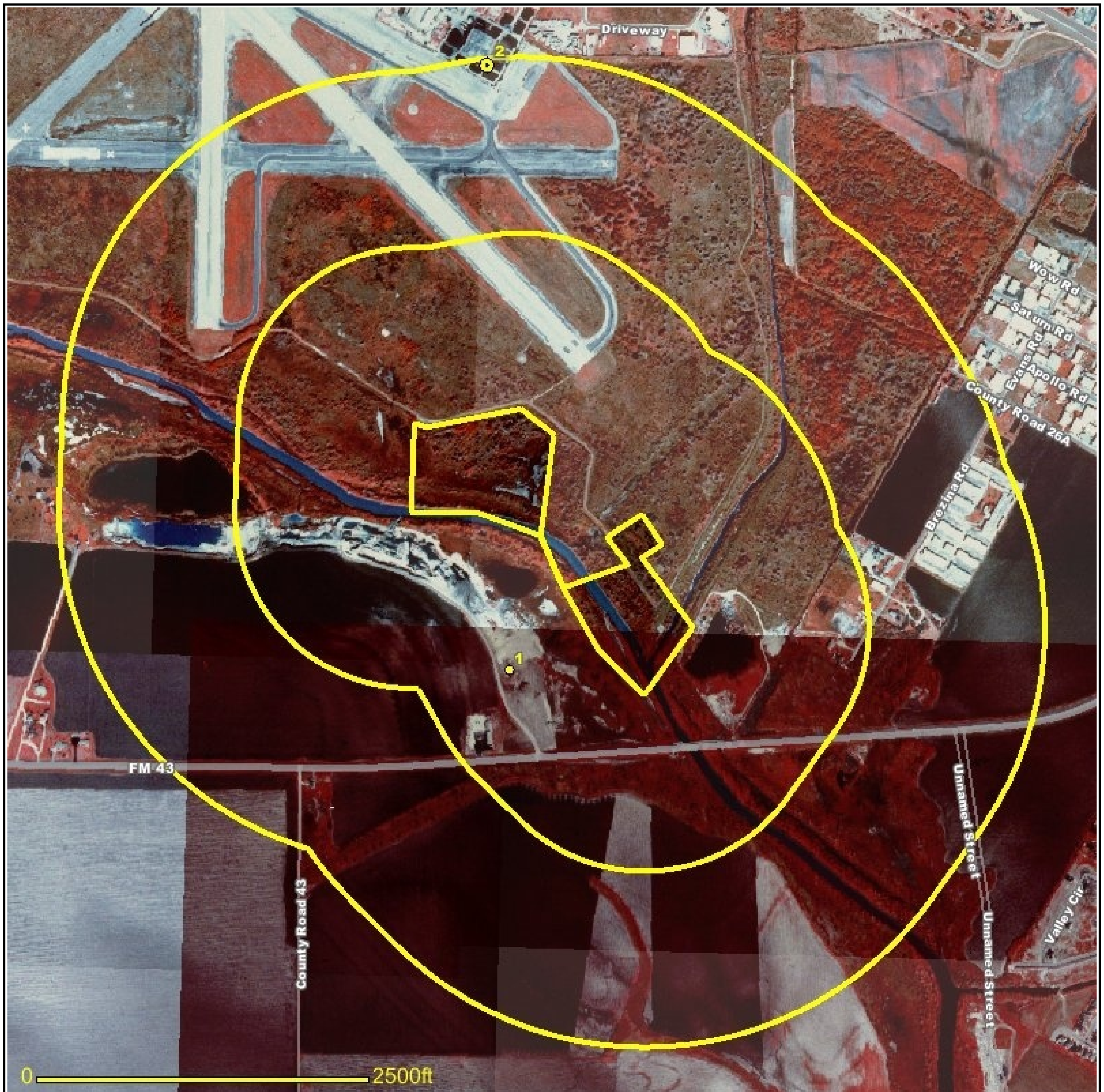
1996 Aerial Overlay Map - 0.5 Mile Buffer

NALF Cabaniss



One inch = 0.24 miles

Subject Site
Site
Cluster
Large Tract
Cluster Site with Large Tract
Primary Highway
State Line
County Line
Roads & Ramps
Railroad
Limited Access Hwy

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N

2004 Aerial Overlay Map - 0.5 Mile Buffer

NALF Cabaniss

One inch = 0.24 miles

Subject Site
Site
Cluster
Large Tract
Cluster Site with Large Tract
Primary Highway
State Line
County Line
Roads & Ramps
Railroad
Limited Access Hwy

N

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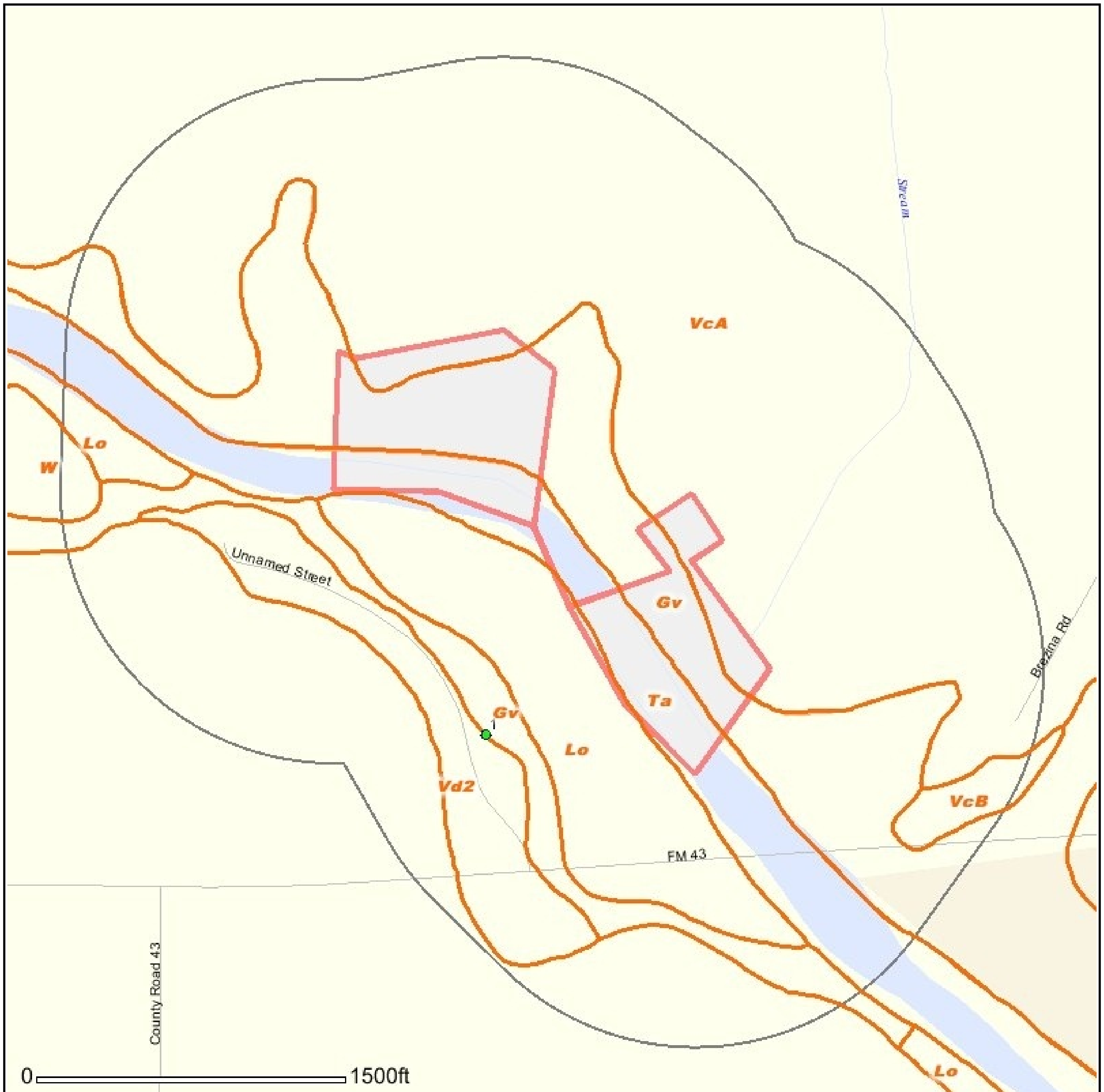
Soil Survey Map

NALF Cabaniss



★ Target Site

Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract
RCRA COR, RCRA TSD, CER, LPST, NPL, ST NPL, SWLF

Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract
RCRA GEN, ST & FED BWN, ST & FED EC, ST & FED IC, DNPL, CER NFRAP, PST, VCP, ST CER

Single Site | Cluster Site | Large Tract | Cluster Site with Large Tract
ERNS, IHW, RCRA, DRYC, AIRS

Limited Access Hwy
Primary Highway
Secondary Highway
Roads
Ramps
Railroad

County
State
Urban Area
Water Bodies
Soils Boundary

One inch = 0.15 miles

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banks@banksinfo.com
www.banksinfo.com

N

Coordinates	
Longitude & Latitude in Degrees Minutes Seconds	NA
Longitude & Latitude in Decimal Degrees	NA
X and Y in UTM	NA

Elevation
NA

Zip Codes Searched	
Search Distance	**Zip Codes**
0.25 miles	78413, 78415
0.5 miles	78413, 78415
1 miles	78413, 78415

Soil Types Found	
Target Property	Gv, Lo, Ta, VcA
Within 0.25 miles of Target Property	Gv, Lo, Ta, VcA, VcB, Vd2, W

Soil Type Descriptions

Gv - Gullied land, saline	
Hydric Status	All components are not hydric and no components are unranked.
Minimum Depth to Bedrock	

Gullied land (100 percent)	
Hydrologic Group	High ruoff potential
Soil Drainage Class	Well drained
Corrosion Potential - Uncoated Steel	Low
Depth to Restrictive Feature	

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	clay	0 cm	203 cm	A-7-6	CH, CL

Lo - Aransas clay, saline	
Hydric Status	Some components are hydric and some components are not hydric.
Minimum Depth to Bedrock	

Aransas, saline (85 percent)	
Hydrologic Group	High ruoff potential
Soil Drainage Class	Poorly drained
Corrosion Potential - Uncoated Steel	High
Depth to Restrictive Feature	

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	clay	0 cm	152 cm	A-7-6	CH

Point Isabel (15 percent)	
Hydrologic Group	
Soil Drainage Class	Well drained
Corrosion Potential - Uncoated Steel	
Depth to Restrictive Feature	

Ta - Tidal flats	
Hydric Status	All components are hydric and no components are unranked.

Minimum Depth to Bedrock	

Tidal flats (70 percent)	
Hydrologic Group	High ruoff potential
Soil Drainage Class	Very poorly drained
Corrosion Potential - Uncoated Steel	High
Depth to Restrictive Feature	

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	fine sand	0 cm	13 cm	A-2-4, A-4	SC-SM, SM
H2	loamy fine sand	13 cm	152 cm	A-2-4, A-4	SC-SM, SM

VcA - Victoria clay, 0 to 1 percent slopes	
Hydric Status	Some components are hydric and some components are not hydric.
Minimum Depth to Bedrock	

Victoria (97 percent)	
Hydrologic Group	High ruoff potential
Soil Drainage Class	Well drained
Corrosion Potential - Uncoated Steel	High
Depth to Restrictive Feature	

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
A	clay	0 cm	15 cm	A-7-6	CH
Bkny	clay	127 cm	203 cm	A-7-6	CH
Bnss	clay	94 cm	127 cm	A-7-6	CH
Bss	clay	15 cm	94 cm	A-7-6	CH

Cranell (2 percent)

Edroy (1 percent)

VcB - Victoria clay, 1 to 3 percent slopes	
Hydric Status	All components are not hydric and no components are unranked.
Minimum Depth to Bedrock	

Victoria (85 percent)	
Hydrologic Group	High ruoff potential
Soil Drainage Class	Well drained
Corrosion Potential - Uncoated Steel	High
Depth to Restrictive Feature	

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	clay	0 cm	15 cm	A-7-6	CH
H2	clay	15 cm	127 cm	A-7-6	CH
H3	clay	127 cm	165 cm	A-7-6	CH

Clareville (5 percent)	
Hydrologic Group	
Soil Drainage Class	Well drained
Corrosion Potential - Uncoated Steel	
Depth to Restrictive Feature	

Clareville (5 percent)

Hydrologic Group	
Soil Drainage Class	Well drained
Corrosion Potential - Uncoated Steel	
Depth to Restrictive Feature	

Victoria (5 percent)	
Hydrologic Group	
Soil Drainage Class	Well drained
Corrosion Potential - Uncoated Steel	
Depth to Restrictive Feature	

Vd2 - Monteola clay, eroded	
Hydric Status	All components are not hydric and no components are unranked.
Minimum Depth to Bedrock	

Monteola, eroded (100 percent)	
Hydrologic Group	High ruoff potential
Soil Drainage Class	Moderately well drained
Corrosion Potential - Uncoated Steel	High
Depth to Restrictive Feature	

Horizon	Soil Texture	Upper Boundary	Lower Boundary	AASHTO	Unified
H1	clay	0 cm	15 cm	A-7-6	CH
H2	clay	15 cm	127 cm	A-7-6	CH
H3	clay	127 cm	165 cm	A-7-6	CH
H4	clay	165 cm	203 cm	A-7-6	CH

W - Water	
Hydric Status	All components are not hydric and no components are unranked.
Minimum Depth to Bedrock	

Water (100 percent)

AASHTO Classification Definitions	
A-1, A-1-a, A-1-b	Granular materials (35% or less passing No. 200 sieve), sonte fragments, gravel and sand
A-2, A-2-4, A-2-5, A-2-6, A-2-7	Granular materials (35% or less passing No. 200 sieve), silty or clayey gravel and sand
A-3	Granular materials (35% or less passing No. 200 sieve), fine sand
A-4	Silt-Clay materials (more than 35% passing No. 200 sieve), silty soils
A-5	Silt-Clay materials (more than 35% passing No. 200 sieve), silty soils
A-6	Silt-Clay materials (more than 35% passing No. 200 sieve), clayey soils
A-7, A-7-5, A-7-6	Silt-Clay materials (more than 35% passing No. 200 sieve), clayey soils
A-8	Silt-Clay materials (more than 35% passing No. 200 sieve), clayey soils

Unified Classification Definitions	
CH	Fine-grained soils, silts and clays (liquid limit is 50% or more), Fat Clay
CL, CL-A (proposed), CL-K (proposed), CL-ML, CL-O (proposed), CL-T (proposed)	Fine-grained soils, silts and clays (liquid limit is less than 50%), Lean Clay
GC, GC-GM	Coarse-grained soils, Gravels, gravel with fines, Clayey Gravel
GM	Coarse-grained soils, Gravels, gravel with fines, Silty Gravel
GP, GP-GC, GP-GM	Coarse-grained soils, Gravels, clean gravels, Poorly Graded Gravel
GW, GW-GC, GW-GM	Coarse-grained soils, Gravels, clean gravels, Well-Graded Gravel
MH, MH-A, MH-K, MH-O, MH-T	Fine-grained soils, silts and clays (liquid limit is 50% or more), Elastic Silt
ML, ML-A (proposed), ML-K (proposed), ML-O (	Fine-grained soils, silts and clays (liquid limit is less than 50%), Silt

proposed), ML-T (proposed)	
OH, OH-T (proposed)	Fine-grained soils, silts and clays (liquid limit is 50% or more), Organic Clay or Organic Silt
OL	Fine-grained soils, silts and clays (liquid limit is less than 50%), Organic Clay or Organic Silt
PT	Highly organic soils, Peat
SC, SC-SM	Coarse-grained soils, Sands, sands with fines, Clayey Sand
SM	Coarse-grained soils, Sands, sands with fines, Silty Sand
SP, SP-SC, SP-SM	Coarse-grained soils, Sands, clean sands, Poorly Graded Sand
SW, SW-SC, SW-SM	Coarse-grained soils, Sands, clean sands, Well-Graded Sand

Source

Natural Resources Conservation Service, Soil Survey Geographic (SSURGO) Database.

Disclaimer

No Wells Found!

This well scan searched for state and federal wells currently digitized in our geospatial database. No wells were found, but more wells could exist within the search area. For a complete well search or to locate more details, please contact Banks to obtain a full Water Well Report or Oil & Gas Well/Pipeline Search Report.

Source

U.S. Geological Survey, Texas Water Development Board (GW and Submitted Driller's Report), Texas Commission of Environmental Quality (PWS), Railroad Commission of Texas (Production Data)

Disclaimer

This well scan from Banks Environmental Data, Inc. has included a digital search of state and federal wells currently digitized in our geospatial database. Since this scan includes only well data that is currently mapped in our geospatial database, more wells could exist within the search area. For a complete well search or to locate more details, please contact Banks to obtain a full Water Well Report or Oil & Gas Well/Pipeline Search Report. More detailed individual well records can also be obtained from Banks for an additional cost, please reference a well ID # from this well scan.

All well locations are based on information obtained from state and federal sources. Although Banks performs quality assurance and quality control on all data, inaccuracies of the records and mapped locations could possibly be traced to the specific regulatory authority or individual well driller. Banks Environmental Data, Inc. cannot fully guarantee the accuracy of the data or well location(s) of the maps and records maintained by the state and federal agencies.

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP	Mapped Sites Summary	NALF Cabaniss

Database	Distance from Target Property	Map ID	Facility Site Name	Facility Site Address	Site Details Page #

*Sites are sorted by database tier, database, and distance from the target site.

Database	Distance from Target Property	Map ID	Facility Site Name	Facility Site Address	Site Details Page #
RCRA COR	0.69 miles E	3	SAFETY-KLEEN SYSTEMS CORPUS CHRISTI BRANCH	3820 BRATTON RD, CORPUS CHRISTI, TX 78415	17
RCRA TSD	0.49 miles N	2	SUNTIDE SAND PIT INC	2809 CABANISS ROAD, CORPUS CHRISTI, TX 78 415	21
LPST	0.49 miles N	2	SUNTIDE ENVIRONMENTAL	2809 CABANISS, CORPUS CHRISTI, TX 78415	23
LPST	0.49 miles N	2	SUNTIDE ENVIRONMENTAL SER	2809 CABANISS RD, CORPUS CHRISTI, TX 78415	24
IHW	0.12 miles SW	1	Ranch Butane	7713 Weber Street, Corpus Christi, TX 78415	26

End of Mapped Sites Summary Section

RCRA COR - RCRA CORRACTS

Map ID #3 **Source: EPA**

EPA Handler ID: TXD000747402 **Handler Sequence Number: 16** **Banks ID: TXD000747402**

SAFETY-KLEEN SYSTEMS CORPUS CHRISTI BRANCH — Rel. Loc.: 0.69 miles E

3820 BRATTON RD, CORPUS CHRISTI, TX 78415 — Elevation: 24 feet (+24)

Contact: RICARDO SAUCEDO

Owner Name:	SAFETY-KLEEN SYSTEMS INC,
Number of Owners:	1
Operator Name:	SAFETY-KLEEN SYSTEMS INC,
Number of Operators:	1
Mailing Address:	3820 BRATTON RD, CORPUS CHRISTI, TX 78413
Contact Name:	RICARDO SAUCEDO
Contact Address:	3820 BRATTON RD, CORPUS CHRISTI, TX 78413
Contact Phone:	210-648-7066
Contact Email Address:	
Government Performance and Results Act (GPRA) Permit:	All units on the current Operating/Post-Closure Permit Baseline for the Facility have an Accomplishment Date.
Government Performance and Results Act (GPRA) Corrective Action:	Yes

Workload Legend: L=Land Disposal I=Incineration B=Boiler/Industrial Furnace S=Storage T=Treatment

Permit Workload:	---ST
Closure Workload:	-----
Post-Closure Workload:	-----
Subject to Corrective Action:	Yes
Subject to Corrective Action 3004:	Yes
Subject to Corrective Action Non-TSDF:	No
Corrective Action Workload:	Yes
Generator Status:	Large Quantity Generator
Nuclear Mixed Waste Handler:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
NAIC Description 1:	All Other Consumer Goods Rental
NAIC Description 2:	
NAIC Description 3:	
NAIC Description 4:	
Federal Generator Class:	Large Quantity Generator
State Generator Class:	
Environmental Controls in Place:	No
Institutional Controls in Place:	Yes
Groundwater Controls in Place:	
Significant Non-Compliance:	No
Unaddressed Significant Non-Complier:	No
Addressed Significant Non-Complier:	No
Significant Non-Complier with Compliance Schedule:	No

Enforcement Description	Responsible Enforcement Agency	Enforcement Date	Penalty Description

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VERBAL INFORMAL	State	12/29/1992
WRITTEN INFORMAL	State	4/12/1991
WRITTEN INFORMAL	State	8/7/1992
WRITTEN INFORMAL	State	12/16/1994
FINAL CIVIL JUDICIAL ACTION FOR IMMINENT AND SUBSTANTIAL ENDANGERMENT	State	8/21/2001
VERBAL INFORMAL	State	1/30/2003
WRITTEN INFORMAL	State	11/5/1987
WRITTEN INFORMAL	State	12/29/1992
WRITTEN INFORMAL	State	7/12/1989
WRITTEN INFORMAL	State	3/28/1990

Evaluation Description	Responsible Agency	Evaluation Date	Violation Found
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	3/11/1991	Yes
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	7/16/1992	Yes
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	12/29/1992	Yes
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	11/21/1994	Yes
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	7/18/1996	
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	11/14/1996	
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	10/16/1997	
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	10/16/1998	
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	1/12/2000	
NON-FINANCIAL RECORD REVIEW	State	11/20/1990	Yes
NON-FINANCIAL RECORD REVIEW	State	9/8/1992	Yes
NON-FINANCIAL RECORD REVIEW	State	7/29/1993	Yes
NON-FINANCIAL RECORD REVIEW	State	3/12/1998	Yes
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	10/12/1987	Yes
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	1/30/2003	Yes
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	8/17/2004	
FOCUSED COMPLIANCE INSPECTION	State	7/8/1988	
FOCUSED COMPLIANCE INSPECTION	State	6/15/1989	Yes
NON-FINANCIAL RECORD REVIEW	State	5/31/2000	
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	2/28/1990	Yes
FOCUSED COMPLIANCE INSPECTION	State	2/28/1990	
NON-FINANCIAL RECORD REVIEW	State	4/24/1990	
COMPLIANCE EVALUATION INSPECTION ON-SITE	State	7/13/2007	

Violation Description	Violation Determined By	Violation Date	Actual Resolution Date	Scheduled Resolution Date
Generators - General	State	1/30/2003	3/13/2003	1/30/2003
Generators - Manifest	State	1/30/2003	3/13/2003	2/13/2003
TSD - General	State	10/12/1987	7/8/1988	12/7/1987
TSD - General	State	2/28/1990	12/7/1990	4/27/1990
TSD - General	State	3/11/1991	5/9/1991	5/13/1991
TSD - Manifest/Records/Reporting	State	10/12/1987	7/8/1988	12/7/1987
Permits - Conditions	State	7/16/1992	9/2/1992	12/3/1992
Permits - Conditions	State	12/29/1992	12/29/1992	
Permits - Conditions	State	12/29/1992	3/12/1998	3/26/1993
State Statute or Regulation	State	10/12/1987	7/8/1988	12/7/1987
State Statute or Regulation	State	6/15/1989	2/28/1990	8/14/1989

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State Statute or Regulation	State	2/28/1990	4/20/1990	4/27/1990
State Statute or Regulation	State	3/11/1991	5/9/1991	5/13/1991
State Statute or Regulation	State	11/21/1994	1/3/1996	4/5/1995

Hazardous Waste Description
1,1-DICHLOROETHYLENE
1,2-DICHLOROETHANE
1,4-DICHLOROBENZENE
2,4,5-TP SILVEX (2,4,5-TRICHLOROPHENOXYPROPIONIC ACID)
2,4,5-TRICHLOROPHENOL
2,4,6-TRICHLOROPHENOL
2,4-D (2,4-DICHLOROPHENOXYACETIC ACID)
2,4-DINITROTOLUENE
ARSENIC
BARIUM
BENZENE
CADMIUM
CARBON TETRACHLORIDE
CHLORDANE
CHLOROBENZENE
CHLOROFORM
CHROMIUM
CORROSIVE WASTE
CRESOL
ENDRIN (1,2,3,4,10,10-HEXACHLORO-1,7-EPOXY-1,4,4A,5,6,7,8,8A-OCTAHYDRO-1,4-ENDO, ENDO-5,8-DIMETH-ANO-NAPHTHALENE)
HEPTACHLOR (AND ITS EPOXIDE)
HEXACHLOROBENZENE
HEXACHLOROBUTADIENE
HEXACHLOROETHANE
IGNITABLE WASTE
LEAD
LINDANE (1,2,3,4,5,6-HEXA-CHLOROCYCLOHEXANE, GAMMA ISOMER)
M-CRESOL
MERCURY
METHOXYCHLOR (1,1,1-TRICHLORO-2,2-BIS [P-METHOXYPHENYL] ETHANE)
METHYL ETHYL KETONE
NITROBENZENE
O-CRESOL
P-CRESOL
PENTACHLOROPHENOL
PYRIDINE
REACTIVE WASTE
SELENIUM
SILVER
TETRACHLOROETHYLENE
THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

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THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: CRESOLS, CRESYLIC ACID, AND NITROBENZENE; AND THE STILL BOTTOMS FROM THE RECOVERY OF THESE SOLVENTS; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, AND F0 05; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
TOXAPHENE (C10 H10 CL8, TECHNICAL CHLORINATED CAMPHENE, 67-69 PERCENT CHLORINE)
TRICHLORETHYLENE
VINYL CHLORIDE

Corrective Action Description	Date of Corrective Action	Responsible Event Agency	Corrective Action Event Active
CA PRIORITIZATION-LOW CA PRIORITY	2/24/1992	EPA Personnel	Yes
RFA COMPLETED-ASSESSMENT WAS A RFA	7/20/1990	State	No
RFI IMPOSITION-FOCUSED DATA COLLECTION REQ STAB EVAL	6/30/1993	State	No
INVESTIGATION REPORT RECEIVED	6/30/1993	State	Yes
INVESTIGATION COMPLETE	1/13/1998	State	Yes
STABILIZATION MEASURES EVALUATION-FACILITY IS AMENABLE TO STABILIZATION	8/7/1995	State	Yes
REMEDY DECISION	1/13/1998	State	Yes
REMEDY CONSTRUCTION	10/23/2001	State	No
STABILIZATION/INTERIM MEASURES DECISION-PRIMARY MEAS IS SOURCE REMOVL &/OR TRT	5/31/1995	State	Yes
STABILIZATION CONSTRUCTION COMPLETED	9/5/1995	State	Yes
HUMAN EXPOSURES CONTROLLED DETERMINATION-MORE INFORMATION NEEDED	3/20/2007	State	Yes
HUMAN EXPOSURES CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE	9/1/1998	State	Yes
RELEASE TO GW CONTROLLED DETERMINATION-MORE INFORMATION NEEDED	3/20/2007	State	Yes
RELEASE TO GW CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE	9/1/1998	State	Yes
INSTITUTIONAL CONTROLS ESTABLISHED-INFORMATIONAL DEVICE	2/6/2003	State	Yes
INSTITUTIONAL CONTROLS ESTABLISHED-PROPRIETARY CONTROL	8/3/2009	State	Yes
CA PROCESS IS TERMINATED	2/6/2003	State	Yes
CMI WORKPLAN RECEIVED	4/16/1998	State	Yes
STABALIZATION MEASURES REPORT RECEIVED	5/31/1995	State	Yes
INVESTIGATION REPORT RECEIVED	2/28/1995	State	Yes
INVESTIGATION REPORT RECEIVED	2/21/1996	State	Yes
INVESTIGATION REPORT RECEIVED	9/10/1997	State	Yes

End of RCRA COR Sites Section

RCRA TSD - RCRA non-CORRACTS TSD

Map ID #2 **Source: EPA**

EPA Handler ID: TXD988076550 **Handler Sequence Number: 2** **Banks ID: TXD988076550**

SUNTIDE SAND PIT INC — Rel. Loc.: 0.49 miles N

2809 CABANISS ROAD, CORPUS CHRISTI, TX 78415 — Elevation: 25 feet (+25)

Contact: MIKE HURST

Owner Name:	SUNTIDE SAND PIT INC
Number of Owners:	1
Operator Name:	SUNTIDE SAND PIT INC
Number of Operators:	1
Mailing Address:	1517 COUNTY RD 26, CORPUS CHRISTI, TX 78415
Contact Name:	MIKE HURST
Contact Address:	1517 COUNTY RD 26, CORPUS CHRISTI, TX 78415
Contact Phone:	512-851-8500
Contact Email Address:	
Government Performance and Results Act (GPRA) Permit:	The facility does not exist on the Operating/Post-Closure Permit Baseline.
Government Performance and Results Act (GPRA) Corrective Action:	No

Workload Legend: L=Land Disposal I=Incineration B=Boiler/Industrial Furnace S=Storage T=Treatment

Permit Workload:	-----
Closure Workload:	-----
Post-Closure Workload:	-----
Subject to Corrective Action:	No
Subject to Corrective Action 3004:	No
Subject to Corrective Action Non-TSDF:	No
Corrective Action Workload:	No
Generator Status:	Not a Generator
Nuclear Mixed Waste Handler:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
NAIC Description 1:	General Freight Trucking, Local
NAIC Description 2:	
NAIC Description 3:	
NAIC Description 4:	
Federal Generator Class:	Not a Generator, Verified
State Generator Class:	
Environmental Controls in Place:	No
Institutional Controls in Place:	No
Groundwater Controls in Place:	No
Significant Non-Compliance:	No
Unaddressed Significant Non-Complier:	No
Addressed Significant Non-Complier:	No
Significant Non-Complier with Compliance Schedule:	No

Enforcement Description	Responsible Enforcement Agency	Enforcement Date	Penalty Description

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Evaluation Description		Responsible Agency	Evaluation Date	Violation Found
COMPLIANCE EVALUATION INSPECTION ON-SITE		State	7/26/1993	
Violation Description	**Violation Determined By**	**Violation Date**	**Actual Resolution Date**	**Scheduled Resolution Date**

End of RCRA TSD Sites Section

LPST - State/Tribal Leaking Storage Tank

Map ID #2		**Source: TCEQ**
LPST ID: 103929	**Facility ID: 0081053**	**Banks ID: 103929**
SUNTIDE ENVIRONMENTAL		Rel. Loc.: 0.49 miles N
2809 CABANISS, CORPUS CHRISTI, TX 78415		Elevation: 25 feet (+25)
Contact: SCOTT BOYD		

Status:	Final concurrence issued, case close
Leak Discovery Date:	7/22/1992
Leak Discovery Method:	
Leak Cause:	
Damage Description:	minor soil contamination - does not require a rap
Leak Closure Date:	
Priority Score:	
Comments:	

Leak Substance	
Diesel:	
Gasoline:	
Jet Fuel:	
Kerosene:	
New Oil:	
Used Oil:	
Unknown:	
CERCLA Substance:	

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Map ID #2		**Source: TCEQ**
LPST ID: 104095	**Facility ID: 0063002**	**Banks ID: 104095**
SUNTIDE ENVIRONMENTAL SER		Rel. Loc.: 0.49 miles N
2809 CABANISS RD, CORPUS CHRISTI, TX 78415		Elevation: 25 feet (+25)
Contact: PHIL HURST		

Status:	Final concurrence issued, case close
Leak Discovery Date:	7/28/1992
Leak Discovery Method:	
Leak Cause:	
Damage Description:	minor soil contamination - does not require a rap
Leak Closure Date:	
Priority Score:	
Owner Name:	SUNTIDE ENVIRONMENTAL SERVICES INC
Owner Phone:	
Contact Name:	DAVID DONALDSON
Contact Phone:	5128544000
Comments:	
Leak Substance	
Diesel:	
Gasoline:	
Jet Fuel:	
Kerosene:	
New Oil:	
Used Oil:	
Unknown:	
CERCLA Substance:	
Tank #1	
Status:	Removed from Ground
Status Date:	6/10/1992
Capacity:	1000
Comments:	
Install Date:	
Last Used Date:	
Closure Certification Date:	
Removed:	
Gallons Remaining:	
Above or Below Ground Tank:	below
Assessment Date:	
Assessment Leak Check:	
Tank Contents are Hazardous:	No
Tank Count:	
Unit ID:	
Construction Type:	
Construction Material:	Steel
Other Construction Material Description:	
Construction Material Repair Date:	

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Piping Material:	Steel
Other Piping Material Description:	
Piping Release Detection:	
Tank Contents:	Gasoline
Other Tank Contents Description:	
Tank Contents Mixture Information:	
Tank Release Detection:	
Automatic Tank Gauge:	
Inventory Control:	
Pressure Testing:	

End of LPST Sites Section

IHW - Industrial Hazardous Waste

Map ID #1		**Source: TCEQ**
Register #: 70395	**EPA ID: NA**	**Banks ID: 70395**
Ranch Butane		Rel. Loc.: 0.12 miles SW
7713 Weber Street, Corpus Christi, TX 78415		Elevation: 15 feet (+15)
Contact: Environmental Manager		

Status:	Inactive
TCEQ ID:	025216
Permit Number:	
Business Type:	Unknown
Owner Name:	Ranch Butane
Owner Phone:	
Company Name:	Ranch Butane
Operator Address:	Corpus Christi, TX 78415

End of IHW Sites Section

Database	Source	Database Description	Update Schedule	Data Requested	Data Obtained	Data Updated	Source Updated
CER -- CERCLIS	EPA	CERCLIS sites come from the Comprehensive Environmental Response, Compensation, and Liability Act, a federal law designed to clean up abandoned hazardous waste sites. These sites are either proposed, listed or under review currently to be a part of the National Priority List.	Quarterly	11/04/2011	11/04/2011	11/05/2011	09/30/2011
CER NFRAP -- CERCLIS NFRAP	EPA	CERCLIS sites designated 'No Further Remedial Action Planned' NFRAP have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the site being placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration.	Quarterly	11/04/2011	11/04/2011	11/05/2011	09/30/2011
DNPL -- Delisted National Priority List	EPA	DNPL is a list of all sites that have been deleted from the EPA NPL list. These sites are taken off the NPL list usually due to no further response or remedial action being required on them. Notices to delete NPL sites are published in the Federal Register and become effective unless the EPA receives significant adverse or critical comments during the 30-day public comment period.	Quarterly	11/04/2011	11/04/2011	11/06/2011	09/30/2011
DRYC -- Dry Cleaners	TCEQ	Dry Cleaner data houses both the DCRP Program information and PERC information released by the TCEQ. The DCRP database contains records funded for state-lead clean up of dry cleaner related contaminated sites. The DCRP administers the Dry Cleaning Facility Release Fund to assist with remediation of contamination caused by dry cleaning solvents. There are two listings from this program: LIST#1 - A historic listing of any facility that registered with the DCRP indicating whether or not the facility has used Perchloroethylene (PERC) in the past. LIST#2 - A Prioritization list of dry cleaner sites Facilities on this list will be investigated in order to determine the existence and or extent of possible contamination. Facilities which are not current on their DCRP payments get dropped from the program. Banks Environmental Data DOES NOT REMOVE these listings from our database so that we may present a more complete historical listing of facilities that may or may not have used PERC in the past.	Quarterly	11/15/2011	11/15/2011	11/15/2011	11/07/2011
ERNS -- ERNS List	EPA/National Response Center	ERNS is a national database used to store information on unauthorized releases of oil and hazardous substances that have been reported to the National Response Center since 2001. The NRC is the sole federal point of contact for reporting oil and chemical spills. Prior to 2001 this information was maintained by the EPA.	Annually	01/13/2011	01/13/2011	01/15/2011	12/31/2010
FED BWN -- Federal Brownfields	EPA	A listing of sites that assist the EPA in collecting, tracking, and updating information of sites in relation to the Small Business Liability Relief and Brownfields Revitalization Act. These sites are real property that is either abandoned or underutilized where redevelopment or expansion is complicated by real or perceived environmental contamination.	Quarterly	11/15/2011	11/17/2011	11/17/2011	10/19/2011
FED EC -- Federal Engineering Control	EPA	This is a listing of Brownfield Management System (BMS) sites that have had Engineering Controls (ECs) placed on them. ECs are physical methods or modifications put into place on a site to reduce or eliminate the possibility of human exposure to known contamination. ECs are a type of Activity and Use Limitation (AUL).	Quarterly	11/15/2011	11/17/2011	11/17/2011	10/19/2011
FED IC -- Federal Institutional Control	EPA	This is a listing of Brownfield Management System (BMS) sites that have had Institutional Controls (ICs) placed on them. ICs are administrative restrictions, such as legal controls, that help minimize the potential for human exposure to known contamination by ensuring appropriate land or resource use. ICs are meant to supplement Engineering Controls and will rarely be the sole remedy at a site. ICs are a type of Activity and Use Limitation (AUL).	Quarterly	11/15/2011	11/17/2011	11/17/2011	10/19/2011
IHW -- Industrial Hazardous Waste	TCEQ	This database contains information on facilities which store, process, or dispose of hazardous waste as maintained by the Industrial and Hazardous Waste Permits section of the TCEQ.	Quarterly	10/24/2011	10/24/2011	10/24/2011	09/08/2011
LPST -- State/Tribal Leaking Storage Tank	TCEQ	This database contains information on leaking storage tanks, equipment failures, compliance, and releases in the state.	Quarterly	11/04/2011	11/04/2011	11/04/2011	10/07/2011
LPST -- State/Tribal Leaking Storage Tank	EPA	The Tribal LUST database (maintained by EPA Region 6) provides information on leaking underground storage tank on tribal lands in Louisiana, Arkansas, Oklahoma, New Mexico and Tribal Nations.	Quarterly	11/07/2011	11/14/2011	11/16/2011	11/14/2011
NPL -- National	EPA	NPL is the list of high priority hazardous waste sites in	Quarterly	11/04/2011	11/04/2011	11/06/2011	09/30/2011

Database	Source	Database Description	Update Schedule	Data Requested	Data Obtained	Data Updated	Source Updated
Priority List		the United States eligible for long-term remedial action financed under the federal Superfund program and CERCLIS. Also known as Superfund sites, the EPA will only add sites to the NPL list based upon completion of the Hazard Ranking System (HRS) screening, public solicitation of comments about the proposed site, and after all comments have been addressed.					
PST -- State/Tribal Storage Tank	TCEQ	This database contains information on above and underground storage tanks, compliance, and releases in the state.	Quarterly	11/03/2011	11/03/2011	11/03/2011	11/02/2011
PST -- State/Tribal Storage Tank	EPA	The Tribal UST database (maintained by EPA Region 6) provides underground storage tank information on tribal lands in Louisiana, Arkansas, Oklahoma, New Mexico and Tribal Nations.	Quarterly	11/07/2011	11/14/2011	11/16/2011	11/14/2011
RCRA -- RCRA	EPA	This database lists all sites that fall under the Resource Conservation and Recovery Act (RCRA) and are not classifiable as treatment, storage, disposers of hazardous material, hazardous waste generator or subject to corrective action activity.	Quarterly	11/13/2011	11/13/2011	11/15/2011	11/10/2011
RCRA COR -- RCRA CORRACTS	EPA	These sites are registered hazardous waste generators or handlers that fall under the Resource Conservation and Recovery Act (RCRA). and subject to corrective action activity.	Quarterly	11/13/2011	11/13/2011	11/15/2011	11/10/2011
RCRA GEN -- RCRA Generators	EPA	The EPA regulates all Hazardous Waste Generators subject to the Resource Conservation and Recovery Act (RCRA). They are classified by the quantity of hazardous waste generated. A Small Quantity Generator (SQG) generates between 100kg and 1,000 kg of waste per month. A Large Quantity Generator (LQG) generates over 1,000 kg of waste per month. A Conditionally Exempt SQG (CEG) generates less than 100 kg of waste per month.	Quarterly	11/13/2011	11/13/2011	11/15/2011	11/10/2011
RCRA TSD -- RCRA non-CORRACTS TSD	EPA	This database lists all treatment, storage and disposal of hazardous material sites that fall under the Resource Conservation and Recovery Act (RCRA). All hazardous waste TSD facilities are required to notify EPA of their existence.	Quarterly	11/13/2011	11/13/2011	11/15/2011	11/10/2011
ST BWN -- State/Trib al Brownfield	TCEQ	Brownfield sites are former industrial properties that lie dormant or underutilized due to liability associated with real or perceived contamination. In Texas, the TCEQ, in close partnership with the EPA and other federal, state, and local redevelopment agencies, and stakeholders, is facilitating cleanup, transferability, and revitalization of Brownfield's through the development of regulatory, tax, and technical assistance tools.	Quarterly	11/01/2011	11/01/2011	11/01/2011	10/31/2011
ST BWN -- State/Trib al Brownfield	RRC	The Railroad Commission of Texas' Voluntary Cleanup Program (RRC-VCP) provides an incentive to remediate Oil & Gas related pollution by participants as long as they did not cause or contribute to the contamination. Applicants to the program receive a release of liability to the state in exchange for a successful cleanup.	Quarterly	10/27/2011	10/31/2011	11/01/2011	10/31/2011
ST CER -- State/Triba l Equivalent CERCLIS	NA	This database is not currently available from this state. If this state does make this database available in the future, Banks Environmental Data will obtain it for reporting purposes.	NA	N/A	N/A	N/A	N/A
ST EC -- State/Tribal Engineering Control	TCEQ	This database includes Voluntary Cleanup Program (VCP) or Innocent Operator Program (IOP) sites that have been remediated and have had Engineering Controls (ECs) placed on them. ECs are physical methods or modifications put into place on a site to reduce or eliminate the possibility of human exposure to known contamination.	Quarterly	11/01/2011	11/01/2011	11/02/2011	10/31/2011
ST IC -- State/Tribal Institutional Control	TCEQ	This database includes Voluntary Cleanup Program (VCP) or Innocent Operator Program (IOP) sites that have been remediated and have had Institutional Controls (ICs) placed on them. ICs are administrative restrictions, such as legal controls, that help minimize the potential for human exposure to known contamination by ensuring appropriate land or resource use.	Quarterly	11/01/2011	11/01/2011	11/02/2011	10/31/2011
ST IC -- State/Tribal Institutional Control	RRC	The Railroad Commission of Texas Voluntary Cleanup Program provides an incentive to remediate Oil & Gas related pollution by participants as long as they did not cause or contribute to the contamination.	Quarterly	10/27/2011	10/31/2011	11/02/2011	10/31/2011
ST NPL -- State/Triba l Equivalent NPL	TCEQ	This database contains sites determined by the TCEQ that may constitute an imminent and substantial endangerment to public health and safety or to the environment due to a release or threatened release of hazardous substances into the environment.	Quarterly	11/17/2011	11/21/2011	11/21/2011	11/21/2011
SWLF -- State/Tribal Disposal or Landfill	TCEQ	The SWLF database contains records of municipal solid waste facilities that may accept various types of municipal solid waste for processing or disposal, depending on the type of facility. A Municipal Solid Waste facility may also accept certain special wastes and non-hazardous industrial solid wastes if approved by the TCEQ executive director.	Quarterly	11/28/2011	12/01/2011	12/01/2011	11/30/2011

Database	Source	Database Description	Update Schedule	Data Requested	Data Obtained	Data Updated	Source Updated
SWLF -- State/Tribal Disposal or Landfill	TCEQ	This database is a listing of closed and abandoned municipal solid waste landfills. The sites included are either unauthorized (UNUM_) or permitted (PERMAPP_).	NA	02/01/2011	02/01/2011	03/06/2011	01/01/1993
VCP -- State/Tribal Voluntary Cleanup	TCEQ	This database contains sites from both the Voluntary Cleanup Program (VCP) and the Innocent Operator Program (IOP). The VCP records contain information on contaminated sites that private parties have cleaned up through assistance from the State in the form of administrative, technical, and legal incentives. The IOP records are sites that have received certificates from the State acknowledging that their property is contaminated as a result of a release or migration of contaminants from a source or sources not located on the property, and they did not cause or contribute to the source or sources of contamination.	Quarterly	11/01/2011	11/01/2011	11/02/2011	10/31/2011
VCP -- State/Tribal Voluntary Cleanup	RRC	The Railroad Commission of Texas Voluntary Cleanup Program provides an incentive to remediate Oil & Gas related pollution by participants as long as they did not cause or contribute to the contamination.	Quarterly	10/27/2011	10/31/2011	11/02/2011	10/31/2011

The Banks Environmental Data Regulatory Database Report© was prepared based upon data obtained from State, Tribal, and Federal sources known to Banks Environmental Data at the time the data was obtained. Great care has been taken by Banks in obtaining the best available data from the best available sources. However, there is a possibility that there are sources of data applicable or pertaining to this report's target property, and/or surrounding properties, to which Banks does not have access or has not accessed. Furthermore, although Banks Environmental Data performs quality assurance and quality control on all data, including data it obtains, Banks recognizes that inaccuracies in data from these sources may, and do, exist; accordingly, inaccurate data may have been used or relied upon in the preparation of this report. Even though Banks Environmental Data performs a thorough and diligent search to locate and fix any inaccuracies in the data relied upon in the preparation of this report and this report, Banks cannot guarantee or warrant the accuracy of the locations, information, data, or report. The purchaser of this report accepts this report "as is" and assumes all risk related to any potential inaccuracy contained in the report or not reported in it, whether due to a reliance by Banks Environmental Data on inaccurate data, or for any other reason [in cluding but not limited to the negligence or express negligence of Banks Environmental Data]. If this report is being used for the Records Review section of a Phase I Site Assessment according to the ASTM 1527-05, for EPA's All Appropriate Inquiry, or for any other purpose (public or private), all liability and responsibility is assumed by the Environmental Professional or other individual or entity acquiring the report.

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP	**NEPA Checklist**
	December 14, 2011

CLIENT
TETRA TECH NUS, INC.-HOUSTON **Attn: Larry Basilio** **2901 Wilcrest Drive** **Suite 405** **Houston, TX 77042** **Phone: (832) 251-5160**

SITE
NALF Cabaniss **Corpus Christi, TX** **(Nueces County)** **JOB # 1079460** **Banks Job # ES87845**

Banks Environmental Data, Inc. P.O. Box 12851, Capitol Station Austin, Texas 78711-2851
1601 Rio Grande, Ste.500 Austin, Texas 78701 512-478-0059 FAX 512-478-1433
E-Mail Banks @ banksinfo.com www.banksinfo.com

BANKS
ENVIRONMENTAL DATA
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NEPA CHECKLIST

Element Occurrence Summary		**Occurrences**	
Layers Searched	**Radius Searched**	**Radius**	**Site**
National Park Service Lands			
Wilderness Areas (managed by 4 fed. agencies)	1 mile		
National Historic Landmarks	½ mile		
National Register of Historic Places	½ mile		
National Registry of Natural Landmarks	1 mile		
National Recreation Areas	1 mile		
National Forest Service Lands			
National Forests	1 mile		
Bureau of Land Management Lands			
Archeological, paleontological, & historic sites	1 mile		
Wild and Scenic Rivers	1 mile		
US Fish and Wildlife Service			
National Wildlife Refuges	1 mile		
National Wetlands Inventory (map)	½ mile	X	X
Federal Emergency Management Agency			
100 & 500 Year Floodplain Areas	½ mile	X	X
Coastal Barrier Resource Areas	½ mile		
US Fish and Wildlife Department			
Threatened and Endangered Species *Note: Texas sites contain federal and state data*	1 mile	X	X

Lack of an "x" indicates a negative occurrence. An "x" indicates a positive occurrence. A positive radius occurrence is defined as having any of the subject element(s) found within the specified radius area of the site. A positive site occurrence is defined as having any of the subject element(s) found within 1/8 mile of the proposed site location.

LIMITATION OF LIABILITY

This Report provides publicly available data that is compiled to comply in part with NEPA standards. Depending on the project, review of additional state and local resources may be required to fully comply with some NEPA standards. Customer proceeds at its own risk in choosing to rely on Banks Environmental Data, Inc services, in whole or in part prior to proceeding with any transaction. Banks Environmental Data, Inc. cannot be an insurer of the accuracy of the information, errors in conversion of data, or for the customer's use of data. Banks Environmental Data, Inc and its officers, agents, employees and independent contractors cannot be held liable for accuracy, storage, delivery, loss or expense suffered by customer resulting directly or indirectly from any information provided by Banks Information Solutions, Inc.

BANKS
ENVIRONMENTAL DATA
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Flood Insurance Rate Map (FIRM) Details

Community	Map Number	Panel	Suffix	Year	Scale
Nueces County, TX (Unincorporated Areas)	485494	0505	D	1987	1” = 1,000’
Nueces County, TX (Unincorporated Areas)	485494	0508	D	1987	1” = 500’

APPROXIMATE SCALE

1000 0 1000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

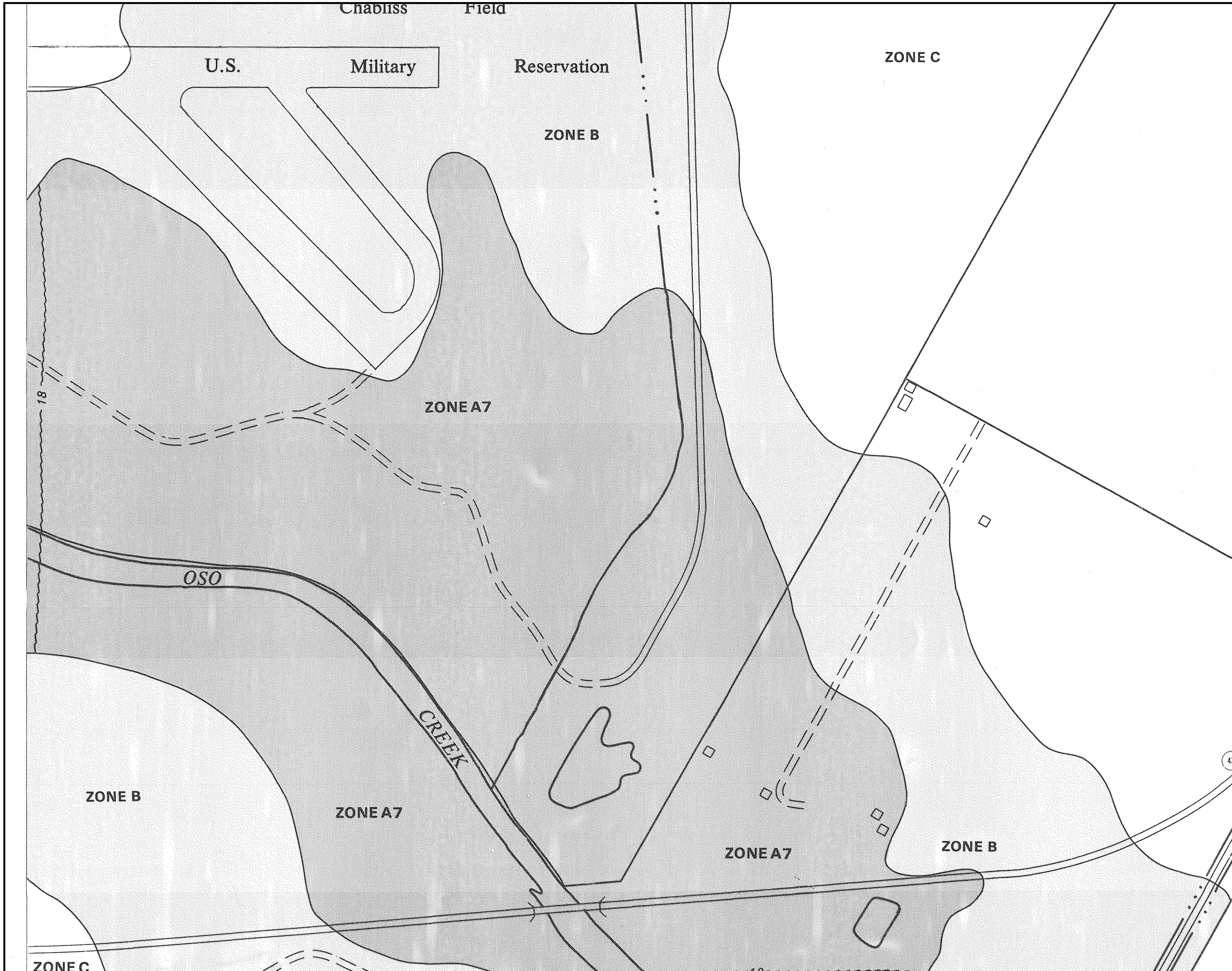
NUECES COUNTY, TEXAS (UNINCORPORATED AREAS)

PANEL 505 OF 705
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
485494 0505 D

MAP REVISED:
JUNE 4, 1987

Federal Emergency Management Agency



APPROXIMATE SCALE

500 0 500 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

NUECES COUNTY,
TEXAS
(UNINCORPORATED AREAS)

PANEL 508 OF 705
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
485494 0508 D

MAP REVISED:
JUNE 4, 1987

Federal Emergency Management Agency

BANKS ENVIRONMENTAL DATA
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Explanation of Zones depicted on Flood Insurance Rate Map (FIRM)

Several areas of flood hazard are commonly identified on the FIRM. One of these areas is the SFHA, which is defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent chance flood is also referred to as the 100-year or "base" flood. SFHAs are labeled as Zone A, Zone AO, Zone AH, Zones A1-30, Zone AE, Zone A99, Zone V, Zone VE, and Zones V1-30. Moderate flood hazard areas, labeled Zone B or Zone X (shaded), are also shown on the FIRM, and are the areas between the limits of the base flood and the 0.2-percent-annual-chance (or "500-year") flood. The areas of minimal flood hazard, which are the areas outside the SFHA and above the 0.2-percent-annual-chance flood level, are labeled Zone C or Zone X (unshaded). The definitions for the various flood hazard areas are presented below.

Zone V: Areas along coasts subject to inundation by the 100-year flood event with additional hazards associated with storm-induced waves. Because detailed hydraulic analyses have not been performed, no base flood elevations or depths are shown. Mandatory flood insurance purchase requirements apply.

Zones VE and V1-V30: Areas along coasts subject to inundation by the 100-year flood event with additional hazards due to storm-induced velocity wave action. Base flood elevations derived from detailed hydraulic analyses are shown within these zones. Mandatory flood insurance purchase requirements apply. (Zone VE is used on new and revised maps in place of Zones V1-V30.)

Zone A: Areas subject to inundation by the 100-year flood event. Because detailed hydraulic analyses have not been performed, no base flood elevation or depths are shown. Mandatory flood insurance purchase requirements apply.

Zones AE and A1-A30: Areas subject to inundation by the 100-year flood event determined by detailed methods. Base flood elevations are shown within these zones. Mandatory flood insurance purchase requirements apply. (Zone AE is used on new and revised maps in place of Zones A1-A30.)

Zone AH: Areas subject to inundation by 100-year shallow flooding (usually areas of ponding) where average depths are between one and three feet. Base flood elevations derived from detailed hydraulic analyses are shown in this zone. Mandatory flood insurance purchase requirements apply.

Zone AO: Areas subject to inundation by 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between one and three feet. Average flood depths derived from detailed hydraulic analyses are shown within this zone. Mandatory flood insurance purchase requirements apply.

Zone A99: Areas subject to inundation by the 100-year flood event, but which will ultimately be protected upon completion of an under construction Federal flood protection system. These are areas of special flood hazard where enough progress has been made on the construction of a protection system, such as dikes, dams, and levees, to consider it complete for insurance rating purposes. Zone A99 may only be used when the flood protection system has reached specified statutory progress toward completion. No base flood elevations or depths are shown. Mandatory flood insurance purchase requirements apply.

Zones B, C, and X: Areas identified in the community FIS as areas of moderate or minimal hazard from the principal source of flood in the area. However, buildings in these zones could be flooded by severe, concentrated rainfall coupled with inadequate local drainage systems. Local stormwater drainage systems are not normally considered in the community's FIS. The failure of a local drainage system creates areas of high flood risk within these rate zones. Flood insurance is available in participating communities but is not required by regulation in these zones. (Zone X is used on new and revised maps in place of Zones B and C.)

Zone D: Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

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National Wetland Inventory Map (NWI) Details

Name	Date	Scale
Oso Creek NW, TX	Unknown	1” = 2,000’

Wetlands Classification System

National Wetlands Inventory Maps are produced by the U.S. Fish and Wildlife Service, a sub-department of the U.S. Department of the Interior. In 1974 the U.S. Fish and Wildlife Service developed criteria for wetland classification with four long-range objectives:

- To describe ecological units that have certain homogeneous natural attributes,
- To arrange these units in a system that will aid decisions about resource management,
- To furnish units for inventory and mapping, and
- To provide uniformity in concepts and terminology throughout the U.S.

High altitude infrared photographs, soil maps, topographic maps and site visits are the methods used to gather data for the production of these maps. In the infrared photos, wetlands appear as different colors and these wetlands are then classified by type. Using a hierarchical classification, the maps identify wetland and deepwater habitats according to:

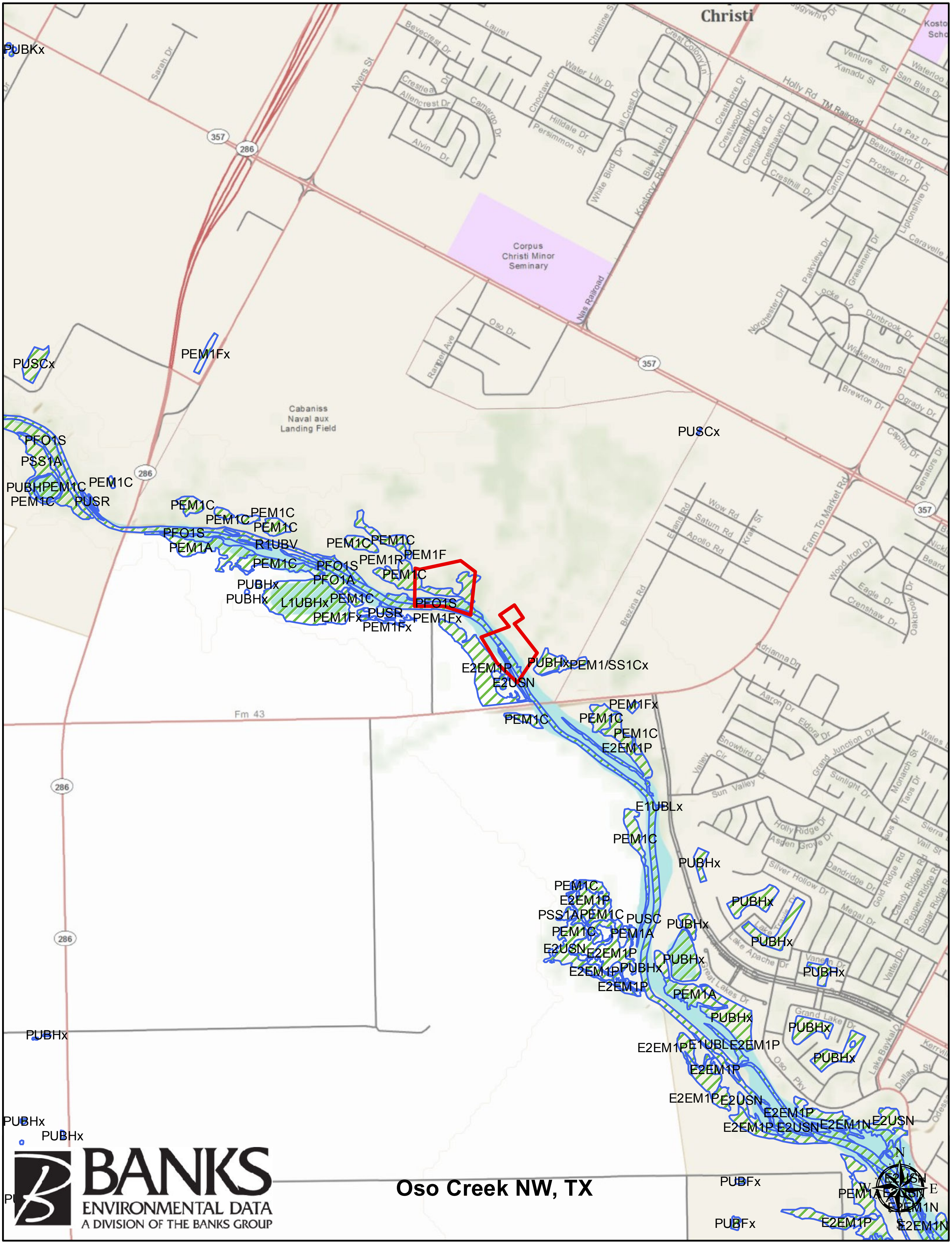
- System
- Subsystem
- Class
- Subclass
- Modifiers

(As defined by Cowardin, et al. U.S. Fish and Wildlife Service FWS/OBS 79/31. 1979.)

The classification list consists of five systems:

- Marine
- Estuarine
- Riverine
- Lacustrine
- Palustrine

The marine system consists of deep-water tidal habitats adjacent to tidal wetlands. The riverine system consists of all wetlands contained within a channel. The lacustrine system includes all non-tidal wetlands related to swamps, bogs and marshes. The estuarine system consists of deepwater tidal habitats and where ocean waters are diluted by fresh water. The palustrine system includes nontidal wetlands dominated by trees and shrubs where salinity is below .5% in tidal areas. All of these systems are divided into sub-systems and further divided into class.



Oso Creek NW, TX

WETLANDS AND DEEPWATER HABITATS CLASSIFICATION

System: M - Marine

Subsystem: 1 - Subtidal

Class	Subclass
RB – Rock Bottom	1 Bedrock 2 Rubble
UB – Unconsolidated Bottom	1 Cobble-Gravel 2 Sand 3 Mud
AB – Aquatic Bed	1 Algal 3 Rooted Vascular
RF – Reef	1 Coral 3 Worm

Subsystem: 2 - Intertidal

Class	Subclass
AB – Aquatic Bed	1 Algal 3 Rooted Vascular
RF – Reef	1 Coral 3 Worm
RS – Rocky Shore	1 Bedrock 2 Rubble
US – Unconsolidated Shore	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic

System: E - Estuarine

Subsystem: 1 - Subtidal

Class	Subclass
RB – Rock Bottom	1 Bedrock 2 Rubble
UB – Unconsolidated Bottom	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
AB – Aquatic Bed	1 Algal 3 Rooted Vascular 4 Floating Vascular
RF – Reef	2 Mollusk 3 Worm

Subsystem: 2 - Intertidal

Class	Subclass
AB – Aquatic Bed	1 Algal 3 Rooted Vascular 4 Floating Vascular
RF – Reef	2 Mollusk 3 Worm
SB – Streambed	1 Bedrock 2 Rubble 3 Cobble-Gravel 4 Sand 5 Mud 6 Organic
RS – Rocky Shore	1 Bedrock 2 Rubble
US – Unconsolidated Shore	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
EM – Emergent	1 Persistent 2 Non-persistent 5 *Phragmites australis*
SS – Scrub-Shrub	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen
FO – Forested	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen

System: R - Riverine

Subsystem: 1 - Tidal; 2 – Lower Perennial; 3 – Upper Perennial; 4* - Intermittent; 5** – Unknown Perennial

Class	Subclass
RB – Rock Bottom	1 Bedrock 2 Rubble
UB – Unconsolidated Bottom	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic
SB*** – Streambed	1 Bedrock 2 Rubble 3 Cobble-Gravel 4 Sand 5 Mud 6 Organic 7 Vegetated
AB – Aquatic Bed	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular
RS – Rocky Shore	1 Bedrock 2 Rubble
US – Unconsolidated Shore	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated
EM – Emergent	2 Nonpersistent

* **Intermittent** is limited to the **Streambed** Class
** **Unknown Perennial** is limited to **Unconsolidated Bottom**
*** **Streambed** is limited to **Tidal** and **Intermittent** Subsystems

WETLANDS AND DEEPWATER HABITATS CLASSIFICATION

System: L - Lacustrine

Subsystem: 1 - Limnetic

Class	RB – Rock Bottom	UB – Unconsolidated Bottom	AB – Aquatic Bed
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular

Subsystem: 2 - Littoral

Class	RB – Rock Bottom	UB – Unconsolidated Bottom	AB – Aquatic Bed	RS – Rocky Shore	US – Unconsolidated Shore	EM – Emergent
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	2 Nonpersistent

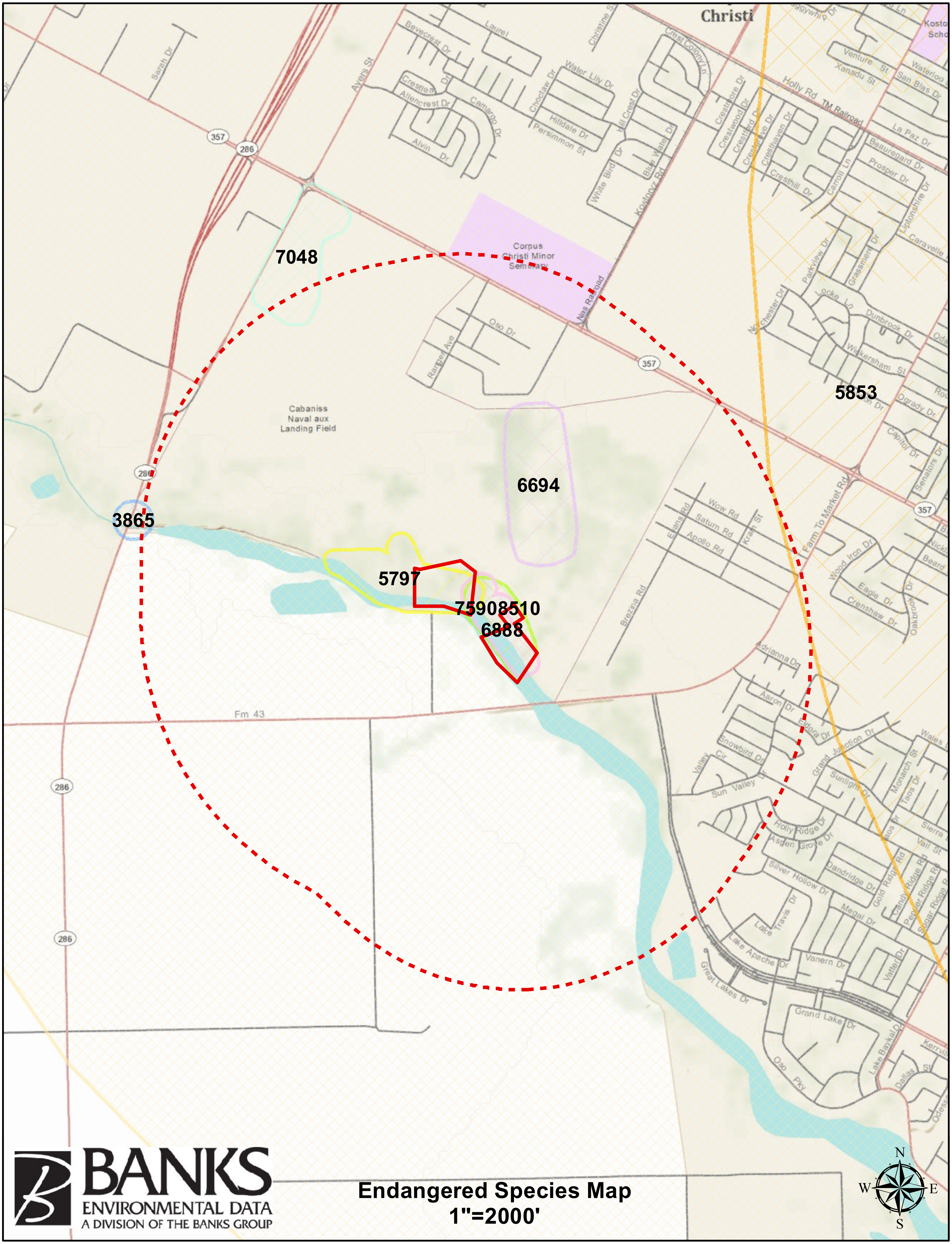
System: P - Palustrine

Class	RB – Rock Bottom	UB – Unconsolidated Bottom	AB – Aquatic Bed	US – Unconsolidated Shore	ML – Moss-Lichen	EM – Emergent	SS – Scrub-Shrub	FO – Forested
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	1 Moss 2 Lichen	1 Persistent 2 Nonpersistent 5 *Phragmites australis*	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen

MODIFIERS

In order to more adequately describe the wetland and deepwater habitats, one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

Water Regime			Special Modifiers	Water Chemistry			Soil
Nontidal	**Saltwater Tidal**	**Freshwater Tidal**		**Coastal Halinity**	**Inland Salinity**	**pH Modifiers for all Fresh Water**	
A Temporarily Flooded	L Subtidal	S Temporarily Flooded-Tidal	b Beaver	1 Hyperhaline	7 Hypersaline	a Acid	g Organic
B Saturated	M Irregularly Exposed	R Seasonally Flooded-Tidal	d Partly Drained/Ditched	2 Euhaline	8 Eusaline	t Circumneutral	n Mineral
C Seasonally Flooded	N Regularly Flooded	T Semipermanently Flooded-Tidal	f Farmed	3 Mixohaline (Brackish)	9 Mixosaline	I Alkaline	
E Seasonally Flooded/ Saturated	P Irregularly Flooded	V Permanently Flooded-Tidal	h Diked/Impounded	4 Polyhaline	0 Fresh		
F Semipermanently Flooded			r Artificial	5 Mesohaline			
G Intermittently Exposed			s Spoil	6 Oligohaline			
H Permanently Flooded			x Excavated	0 Fresh			
J Intermittently Flooded							
K Artificially Flooded							



BANKS ENVIRONMENTAL DATA
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Endangered Species Map
1"=2000'

Element Occurrence Record

Scientific Name: Acacia rigidula series

Occurrence #: 14 **Eo Id:** 6888

Track Status: Track all extant and selected historical EOs

Common Name: Blackbrush Series

TX Protection Status:

Global Rank: G5 **State Rank:** S5 **Federal Status:**

Location Information:

Watershed:

12110202 - South Corpus Christi Bay

County Name: Nueces

State: TX

Mapsheet: 27097-F4, Oso Creek NW

Directions:

CABANISS NAVAL AUXILIARY LANDING FIELD, STEEP SLOPES ALONG NORTH BANK OF OSO CREEK, CA. 0.2-0.5 MILE NORTHWEST OF STATE ROUTE 43 BRIDGE; SOUTH EDGE OF INSTALLATION

Survey Information:

First Observation:

Survey Date: 1992-06-16

Last Observation: 1992-06-16

Eo Type:

Eo Rank: D

Eo Rank Date: 1992-06-16

Observed Area:

Comments:

General Description: DENSE MIXED EVERGREEN-DECIDUOUS SHRUBLAND ON HEAVY CLAY SOILS; ACACIA BERLANDIERI, KIRWINSKIA HUMBOLDTIANA, BUMELIA CELASTRINA, LYCIUM BERLANDIERI, YUCCA TORREYI COMMON; GOUND LAYER MOSTLY CENCHRUS CILIARIS

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: NONE; VERY BRIEF PLANT LIST IN REPORT TO NAVY

Managed Area:

Managed Area Name

CABANISS NAVAL AUXILIARY LANDING FIELD (OFF-LANDING FIELD)

Reference:

Citation:

CARR, W.R. 1992. FIELD SURVEY OF NAVAL AUXILIARY LANDING FIELD CABANISS, 16 JUNE 1992.

Element Occurrence Record

Specimen:

Element Occurrence Record

Scientific Name: Bothriochloa barbinodis-chloris pluriflora series
Occurrence #: 3 **Eo Id:** 7048
Common Name: Cane Bluestem-false Rhodesgrass Series
Track Status: Track all extant and selected historical EOs
TX Protection Status:
Global Rank: G3 **State Rank:** S3
Federal Status:

Location Information:

Watershed:

12110202 - South Corpus Christi Bay

County Name:	State:	Mapsheet:
Nueces	TX	27097-F4, Oso Creek NW

Directions:

CABANISS NAVAL AUXILIARY LANDING FIELD, WEST SIDE OF NORTH END OF NORTH-SOUTH RUNWAY, NORTHWEST CORNER OF INSTALLATION

Survey Information:

First Observation: **Survey Date:** 1992-06-16 **Last Observation:** 1992-06-16

Eo Type: **Eo Rank:** D **Eo Rank Date:** 1992-06-16

Observed Area:

Comments:

General Description: GRASSLAND DOMINATED BY INTRODUCED NON-NATIVE GRASSES; HEAVY CLAY SOILS PROBABLY IN CULTIVATION BEFORE BASE ESTABLISHED IN 1940'S

Comments: MAY BE ASSIGNED TO SOME OTHER SERIES

Protection Comments:

Management Comments:

Data:

EO Data: NONE; PLANT LIST IN REPORT TO NAVY

Managed Area:

Managed Area Name

CABANISS NAVAL AUXILIARY LANDING FIELD (OFF-LANDING FIELD)

Reference:

Citation:

CARR, W.R. 1992. FIELD SURVEY OF NAVAL AUXILIARY LANDING FIELD CABANISS, 16 JUNE 1992.

Element Occurrence Record

Specimen:

Element Occurrence Record

Scientific Name: Chloris texensis

Occurrence #: 28 **Eo Id:** 7590

Track Status: Track all extant and selected historical EOs

Common Name: Texas windmill-grass

TX Protection Status:

Global Rank: G2 **State Rank:** S2

Federal Status:

Location Information:

Watershed:

12110202 - South Corpus Christi Bay

County Name:

Nueces

State:

TX

Mapsheet:

27097-F4, Oso Creek NW

27097-F3, Oso Creek NE

27097-G4, Corpus Christi

Directions:

CORPUS CHRISTI, IN WASTE PLACE ON SOUTH SIDE

Survey Information:

First Observation:

Survey Date:

Last Observation: 1973-09-02

Eo Type:

Eo Rank:

Eo Rank Date:

Observed Area:

Comments:

General Description: CLAY

Comments:

Protection Comments:

Management Comments:

Data:

EO Data:

Managed Area:

Managed Area Name

Reference:

Element Occurrence Record

Citation:

Specimen:

CORPUS CHRISTI MUSEUM/HERBARIUM. 1973. F.B. JONES #7833, SPECIMEN # 77D230 CC. 2 SEPTEMBER 1973.

Element Occurrence Record

Scientific Name: Gopherus berlandieri
Occurrence #: 18 **Eo Id:** 3865
Common Name: Texas Tortoise
Track Status: Track all extant and selected historical EOs
TX Protection Status: T
Global Rank: G4 **State Rank:** S2
Federal Status:

Location Information:

Watershed:

12110202 - South Corpus Christi Bay

County Name:	State:	Mapsheet:
Nueces	TX	27097-F4, Oso Creek NW

Directions:

CORPUS CHRISTI, TX HIGHWAY 286 AT OSO CREEK

Survey Information:

First Observation: **Survey Date:** **Last Observation:** 1961-02-10

Eo Type: **Eo Rank:** **Eo Rank Date:**

Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data:

Managed Area:

Managed Area Name

Reference:

Citation:

ELLIOTT, LEE. 1994. MEMORANDUM TO DORINDA SULLIVAN DATED DECEMBER 2, 1994 CONCERNING TEXAS A&
M-KINGSVILLE VERTEBRATE SPECIMENS CATALOGUE.

Element Occurrence Record

Specimen:

TEXAS A & M UNIVERSITY-KINGSVILLE--VERTEBRATE COLLECTION. 1961. UNKNOWN COLLECTOR, SPECIMEN # 478
AI. 10 FEBRUARY 1961.

Element Occurrence Record

Scientific Name: Nerodia clarkii

Occurrence #: 14 **Eo Id:** 5853

Track Status: Track all extant and selected historical EOs

Common Name: Gulf Saltmarsh Snake

TX Protection Status:

Global Rank: G4Q **State Rank:** S4 **Federal Status:**

Location Information:

Watershed:

12110202 - South Corpus Christi Bay

County Name:	State:	Mapsheet:
Nueces	TX	27097-F3, Oso Creek NE

Directions:

CORPUS CHRISTI NEAR OSO BAY

Survey Information:

First Observation: **Survey Date:** **Last Observation:**

Eo Type: **Eo Rank:** **Eo Rank Date:**

Observed Area:

Comments:

General Description:

Comments: NO DATE GIVEN, BUT BETWEEN 1976 AND 1980

Protection Comments:

Management Comments:

Data:

EO Data:

Managed Area:

Managed Area Name

Reference:

Citation:

Element Occurrence Record

Specimen:

TEXAS A & M UNIVERSITY-KINGSVILLE--VERTEBRATE COLLECTION. NO DATE. A.H. CHANEY, SPECIMEN # 4516 AI.

Element Occurrence Record

Scientific Name: Prosopis glandulosa-celtis pallida series

Occurrence #: 3 **Eo Id:** 6694

Track Status: Track all extant and selected historical EOs

Common Name: Mesquite-granjeno Series

TX Protection Status:

Global Rank: G5 **State Rank:** S5 **Federal Status:**

Location Information:

Watershed:

12110202 - South Corpus Christi Bay

County Name: Nueces

State: TX

Mapsheet: 27097-F4, Oso Creek NW

Directions:

CABANISS NAVAL AUXILIARY LANDING FIELD, ALONG PATROL ROAD LEADING SOUTH FROM GATE JSUT EAST OF R.C. COLA WAREHOUSE, WEST SIDE OF DRAINAGE DITCH, EAST OF EAST END OF EAST-WEST RUNWAY

Survey Information:

First Observation:

Survey Date: 1991-09-26

Last Observation: 1991-09-26

Eo Type:

Eo Rank: D

Eo Rank Date: 1991-09-26

Observed Area:

Comments:

General Description: LOW DIVERSITY DISTURBANCE TYPE, MOSTLY MESQUITE AND HACKBERRY, PRICKLY PEAR IN UNDERSTORY, NON-NATIVE GRASSES IN GROUND LAYER

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN REPORT TO NAVY

Managed Area:

Managed Area Name

CABANISS NAVAL AUXILIARY LANDING FIELD (OFF-LANDING FIELD)

Reference:

Citation:

CARR, W.R. 1991. SURVEY OF RARE, THREATENED, AND ENDANGERED PLANTS ON U.S. NAVY PROPERTY IN SOUTH TEXAS; INTERIM REPORT.

Element Occurrence Record

Specimen:

Element Occurrence Record

Scientific Name: Spartina spartinae series

Common Name: Gulf Cordgrass Series

Global Rank: G4 **State Rank:** S4

Occurrence #: 3 **Eo Id:** 5797

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Federal Status:

Location Information:

Watershed:

12110202 - South Corpus Christi Bay

County Name:	State:	Mapsheet:
Nueces	TX	27097-F4, Oso Creek NW

Directions:

TERRACES ON NORTH BANK OF OSO CREEK, SOUTH EDGE OF CABANISS NAVAL AUXILIARY LANDING FIELD, EAST OF STATE ROUTE 286, NORTH OF STATE ROUTE 43

Survey Information:

First Observation: **Survey Date:** 1992-06-16 **Last Observation:** 1992-06-16

Eo Type: **Eo Rank:** C **Eo Rank Date:** 1992-06-16

Observed Area:

Comments:

General Description: MOIST HEAVY SLIGHTLY SALINE CLAY SOILS, STANDING WATER AFTER RAINS; SPARTINAE SPARTINAE, DISTICHLIS SPICATA, SPOROBOLUS VIRGINICUS, SCIRPUS MARITIMUS COMMON, WITH PATCHES OF HALOPHYTIC FORBS

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: NONE; PLANT LIST IN REPORT TO NAVY

Managed Area:

Managed Area Name

CABANISS NAVAL AUXILIARY LANDING FIELD (OFF-LANDING FIELD)

Reference:

Citation:

CARR, W.R. 1992. FIELD SURVEY OF NAVAL AUXILIARY LANDING FIELD CABANISS, 16 JUNE 1992.

Element Occurrence Record

Specimen:

Element Occurrence Record

Scientific Name: Tradescantia buckleyi

Occurrence #: 1 **Eo Id:** 8510

Track Status: Track all extant and selected historical EOs

Common Name: Buckley spiderwort

TX Protection Status:

Global Rank: G2 **State Rank:** S2

Federal Status:

Location Information:

Watershed:

12110202 - South Corpus Christi Bay

County Name: Nueces

State: TX

Mapsheet: 27097-F4, Oso Creek NW

Directions:

Naval Auxiliary Landing Field Cabaniss. North side of Oso Creek, south side of perimeter road in southeast corner of facility. Ca. 1.5-1.6 air miles south/southeast of junction of St. Rt. 357 (Saratoga Blvd.) and St. Rt. 286 (Ayers St.).

Survey Information:

First Observation: 1997-04-16 **Survey Date:** 1997-04-16 **Last Observation:** 1997-04-16

Eo Type: **Eo Rank:** B **Eo Rank Date:** 1997-04-16

Observed Area:

Comments:

General Description: Forming colonies under Acacia rigidula, Forestiera angustifolia and other shrubs in fairly dense shrubland on clay slope.

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: 16 April 1997 - Locally common, 100-200 plants in flower. Forming colonies.

Managed Area:

Managed Area Name

Reference:

Citation:

Element Occurrence Record

Specimen:

University of Texas Herbarium. 1997. W.R. Carr (16083) and David Wolfe. Specimen # none. 16 April 1997. TEX-LL.

Last Revision: 5/25/2011 03:02:00 PM

NUECES COUNTY

AMPHIBIANS

		Federal Status	State Status
Black-spotted newt	*Notophthalmus meridionalis*		T

can be found in wet or sometimes wet areas, such as arroyos, canals, ditches, or even shallow depressions; aestivates in the ground during dry periods; Gulf Coastal Plain south of the San Antonio River

Sheep frog	*Hypopachus variolosus*		T

predominantly grassland and savanna; moist sites in arid areas

BIRDS

		Federal Status	State Status
American Peregrine Falcon	*Falco peregrinus anatum*	DL	T

year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.

Arctic Peregrine Falcon	*Falco peregrinus tundrius*	DL	

migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.

Brown Pelican	*Pelecanus occidentalis*	DL	E

largely coastal and near shore areas, where it roosts and nests on islands and spoil banks

Eskimo Curlew	*Numenius borealis*	LE	E

historic; nonbreeding: grasslands, pastures, plowed fields, and less frequently, marshes and mudflats

Mountain Plover	*Charadrius montanus*		

breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous

Northern Aplomado Falcon	*Falco femoralis septentrionalis*	LE	E

open country, especially savanna and open woodland, and sometimes in very barren areas; grassy plains and valleys with scattered mesquite, yucca, and cactus; nests in old stick nests of other bird species

Peregrine Falcon	*Falco peregrinus*	DL	T

both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.

Piping Plover	*Charadrius melodus*	LT	T

wintering migrant along the Texas Gulf Coast; beaches and bayside mud or salt flats

Reddish Egret *Egretta rufescens* T

resident of the Texas Gulf Coast; brackish marshes and shallow salt ponds and tidal flats; nests on ground or in trees or bushes, on dry coastal islands in brushy thickets of yucca and prickly pear

Sennett's Hooded Oriole *Icterus cucullatus sennetti*

often builds nests in and of Spanish moss (Tillandsia unioides); feeds on invertebrates, fruit, and nectar; breeding March to August

Snowy Plover *Charadrius alexandrinus*

formerly an uncommon breeder in the Panhandle; potential migrant; winter along coast

Sooty Tern *Sterna fuscata* T

predominately 'on the wing'; does not dive, but snatches small fish and squid with bill as it flies or hovers over water; breeding April-July

Southeastern Snowy Plover *Charadrius alexandrinus tenuirostris*

wintering migrant along the Texas Gulf Coast beaches and bayside mud or salt flats

Sprague's Pipit *Anthus spragueii* C

only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.

Texas Botteri's Sparrow *Aimophila botterii texana* T

grassland and short-grass plains with scattered bushes or shrubs, sagebrush, mesquite, or yucca; nests on ground of low clump of grasses

Western Burrowing Owl *Athene cunicularia hypugaea*

open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Western Snowy Plover *Charadrius alexandrinus nivosus*

uncommon breeder in the Panhandle; potential migrant; winter along coast

White-faced Ibis *Plegadis chihi* T

prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats

White-tailed Hawk *Buteo albicaudatus* T

near coast on prairies, cordgrass flats, and scrub-live oak; further inland on prairies, mesquite and oak savannas, and mixed savanna-chaparral; breeding March-May

Whooping Crane *Grus americana* LE E

potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties

Wood Stork *Mycteria americana* T

forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960

FISHES		Federal Status	State Status
American eel	*Anguilla rostrata*		

coastal waterways below reservoirs to gulf; spawns January to February in ocean, larva move to coastal waters, metamorphose, then females move into freshwater; most aquatic habitats with access to ocean, muddy bottoms, still waters, large streams, lakes; can travel overland in wet areas; males in brackish estuaries; diet varies widely, geographically, and seasonally

Opossum pipefish	*Microphis brachyurus*		T

brooding adults found in fresh or low salinity waters and young move or are carried into more saline waters after birth; southern coastal areas

Smalltooth sawfish	*Pristis pectinata*	LE	E

different life history stages have different patterns of habitat use; young found very close to shore in muddy and sandy bottoms, seldom descending to depths greater than 32 ft (10 m); in sheltered bays, on shallow banks, and in estuaries or river mouths; adult sawfish are encountered in various habitat types (mangrove, reef, seagrass, and coral), in varying salinity regimes and temperatures, and at various water depths, feed on a variety of fish species and crustaceans

Texas pipefish	*Syngnathus affinis*		

Corpus Christi Bay; seagrass beds

INSECTS		Federal Status	State Status
Manfreda giant-skipper	*Stallingsia maculosus*		

most skippers are small and stout-bodied; name derives from fast, erratic flight; at rest most skippers hold front and hind wings at different angles; skipper larvae are smooth, with the head and neck constricted; skipper larvae usually feed inside a leaf shelter and pupate in a cocoon made of leaves fastened together with silk

MAMMALS		Federal Status	State Status
Maritime pocket gopher	*Geomys personatus maritimus*		

fossorial, in deep sandy soils; feeds mostly from within burrow on roots and other plant parts, especially grasses; ecologically important as prey species and in influencing soils, microtopography, habitat heterogeneity, and plant diversity

Ocelot	*Leopardus pardalis*	LE	E

dense chaparral thickets; mesquite-thorn scrub and live oak mottes; avoids open areas; breeds and raises young June-November

Plains spotted skunk	*Spilogale putorius interrupta*		

catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie

Red wolf	*Canis rufus*	LE	E

extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies

Southern yellow bat	*Lasiurus ega*		T

associated with trees, such as palm trees (Sabal mexicana) in Brownsville, which provide them with daytime roosts; insectivorous; breeding in late winter

West Indian manatee *Trichechus manatus* LE E

Gulf and bay system; opportunistic, aquatic herbivore

White-nosed coati *Nasua narica* T

woodlands, riparian corridors and canyons; most individuals in Texas probably transients from Mexico; diurnal and crepuscular; very sociable; forages on ground and in trees; omnivorous; may be susceptible to hunting, trapping, and pet trade

REPTILES

Federal Status State Status

Atlantic hawksbill sea turtle *Eretmochelys imbricata* LE E

Gulf and bay system, warm shallow waters especially in rocky marine environments, such as coral reefs and jetties, juveniles found in floating mats of sea plants; feed on sponges, jellyfish, sea urchins, molluscs, and crustaceans, nests April through November

Green sea turtle *Chelonia mydas* LT T

Gulf and bay system; shallow water seagrass beds, open water between feeding and nesting areas, barrier island beaches; adults are herbivorous feeding on sea grass and seaweed; juveniles are omnivorous feeding initially on marine invertebrates, then increasingly on sea grasses and seaweeds; nesting behavior extends from March to October, with peak activity in May and June

Gulf Saltmarsh snake *Nerodia clarkii*

saline flats, coastal bays, and brackish river mouthss

Keeled earless lizard *Holbrookia propinqua*

coastal dunes, barrier islands, and other sandy areas; eats insects and likely other small invertebrates; eggs laid underground March-September (most May-August)

Kemp's Ridley sea turtle *Lepidochelys kempii* LE E

Gulf and bay system, adults stay within the shallow waters of the Gulf of Mexico; feed primarily on crabs, but also snails, clams, other crustaceans and plants, juveniles feed on sargassum and its associated fauna; nests April through August

Leatherback sea turtle *Dermochelys coriacea* LE E

Gulf and bay systems, and widest ranging open water reptile; omnivorous, shows a preference for jellyfish; in the US portion of their western Atlantic nesting territories, nesting season ranges from March to August

Loggerhead sea turtle *Caretta caretta* LT T

Gulf and bay system primarily for juveniles, adults are most pelagic of the sea turtles; omnivorous, shows a preference for mollusks, crustaceans, and coral; nests from April through November

Spot-tailed earless lizard *Holbrookia lacerata*

central and southern Texas and adjacent Mexico; moderately open prairie-brushland; fairly flat areas free of vegetation or other obstructions, including disturbed areas; eats small invertebrates; eggs laid underground

Texas diamondback terrapin *Malaclemys terrapin littoralis* coastal marshes, tidal flats, coves, estuaries, and lagoons behind barrier beaches; brackish and salt water; burrows into mud when inactive; may venture into lowlands at high tide

Texas horned lizard *Phrynosoma cornutum* T

open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September

Texas indigo snake *Drymarchon melanurus erebennus* T

Texas south of the Guadalupe River and Balcones Escarpment; thornbush-chaparral woodlands of south Texas, in particular dense riparian corridors; can do well in suburban and irrigated croplands if not molested or indirectly poisoned; requires moist microhabitats, such as rodent burrows, for shelter

Texas scarlet snake *Cemophora coccinea lineri* T

mixed hardwood scrub on sandy soils; feeds on reptile eggs; semi-fossorial; active April-September

Texas tortoise *Gopherus berlandieri* T

open brush with a grass understory is preferred; open grass and bare ground are avoided; when inactive occupies shallow depressions at base of bush or cactus, sometimes in underground burrows or under objects; longevity greater than 50 years; active March-November; breeds April-November

PLANTS

Federal Status State Status

Elmendorf's onion *Allium elmendorfii*

Texas endemic; grassland openings in oak woodlands on deep, loose, well-drained sands; in Coastal Bend, on Pleistocene barrier island ridges and Holocene Sand Sheet that support live oak woodlands; to the north it occurs in post oak-black hickory-live oak woodlands over Queen City and similar Eocene formations; one anomalous specimen found on Llano Uplift in wet pockets of granitic loam; flowering March-April, May

Lila de los llanos *Echeandia chandleri*

most commonly encountered among shrubs or in grassy openings in subtropical thorn shrublands on somewhat saline clays of lomas along Gulf Coast near mouth of Rio Grande; also observed in a few upland coastal prairie remnants on clay soils over the Beaumont Formation at inland sites well to the north and along railroad right-of-ways and cemeteries; flowering (May-) September-December, fruiting October-December

Mexican mud-plantain *Heteranthera mexicana*

wet clayey soils of resacas and ephemeral wetlands in South Texas and along margins of playas in the Panhandle; flowering June-December, only after sufficient rainfall

Plains gumweed *Grindelia oolepis*

coastal prairies on heavy clay (blackland) soils, often in depressional areas, sometimes persisting in areas where management (mowing) may maintain or mimic natural prairie disturbance regimes; 'crawfish lands'; on nearly level Victoria clay, Edroy clay, claypan, possibly Greta within Orelia fine sandy loam over the Beaumont Formation, and Harlingen clay; roadsides, railroad rights-of-ways, vacant lots in urban areas, cemeteries; flowering April-December

Slender rushpea *Hoffmannseggia tenella* LE E

Texas endemic; coastal prairie grasslands on level uplands and on gentle slopes along drainages, usually in areas of shorter or sparse vegetation; soils often described as Blackland clay, but at some of these sites soils are coarser textured and lighter in color than the typical heavy clay of the coastal prairies; flowering April-November

South Texas ambrosia *Ambrosia cheiranthifolia* LE E

grasslands and mesquite-dominated shrublands on various soils ranging from heavy clays to lighter textured sandy loams, mostly over the Beaumont Formation on the Coastal Plain; in modified unplowed sites such as railroad and highyway right-of-ways, cemeteries, mowed fields, erosional areas along small creeks; flowering July-November

Texas windmill-grass *Chloris texensis*

Texas endemic; sandy to sandy loam soils in relatively bare areas in coastal prairie grassland remnants, often on roadsides where regular mowing may mimic natural prairie fire regimes; flowering in fall

Welder machaeranthera *Psilactis heterocarpa*

Texas endemic; grasslands , varying from midgrass coastal prairies, and open mesquite-huisache woodlands on nearly level, gray to dark gray clayey to silty soils; known locations mapped on Victoria clay, Edroy clay, Dacosta sandy clay loam over Beaumont and Lissie formations; flowering September-November

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NEPA CHECKLIST

ADDITIONAL SOURCES NOT CONTACTED

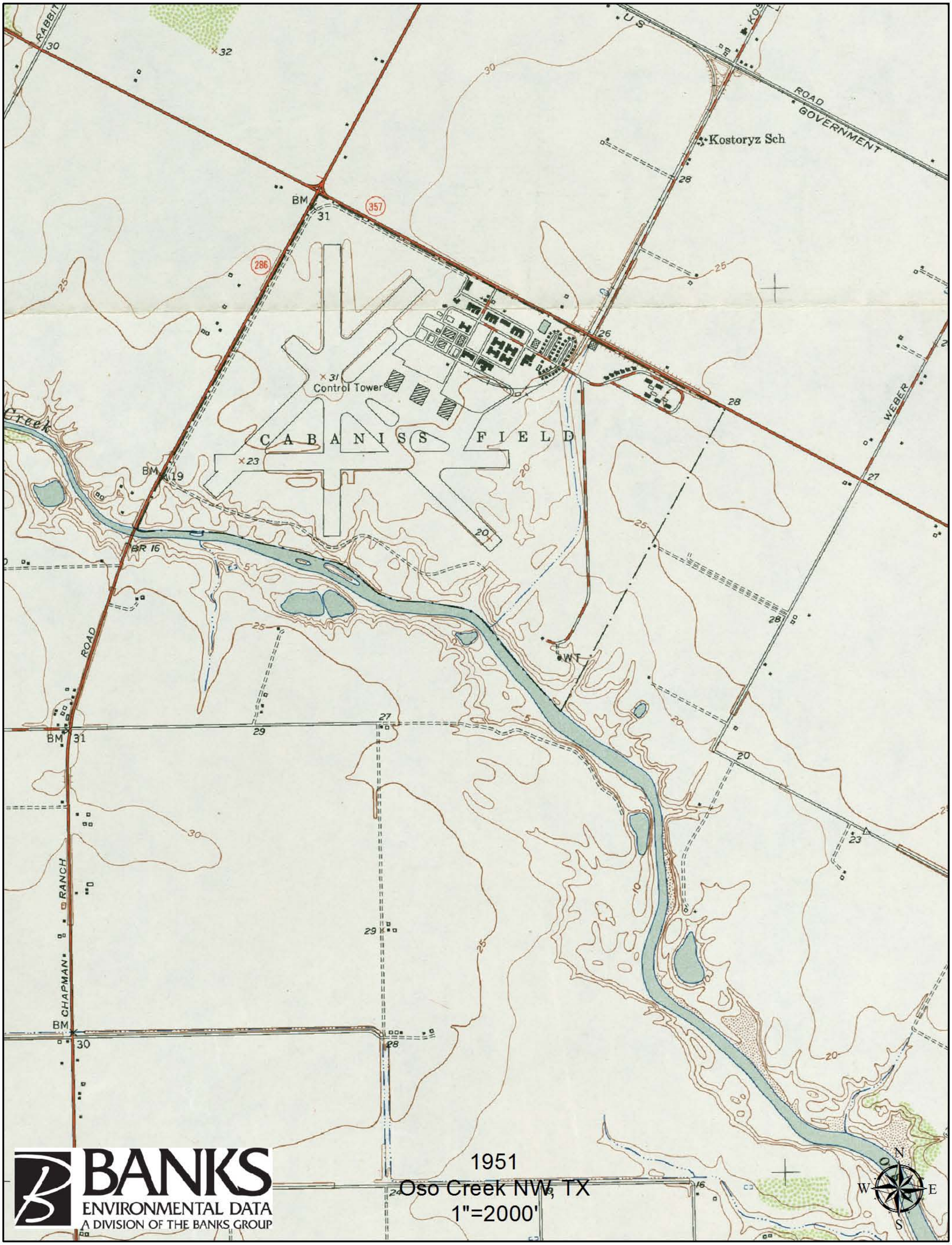
FEDERAL SOURCE	
Indian Religious Site information	May be requested from: Bureau of Indian Affairs Anadarko Area Office WCD Office Complex P.O. Box 368 Anadarko, Oklahoma 73005 (405) 247-6673
Endangered Species Information	May be requested from: Wildlife Diversity Program Texas Parks and Wildlife Department 4200 Smith School Road Austin, Texas 78744 (512) 389-8723
STATE SOURCE	
Archeological and Historic Sites	May be requested from: Texas Historical Commission 1511 Colorado Austin, Texas 78701 (512) 463-6100

NEPA CHECKLIST

DESCRIPTION OF ELEMENTS REVIEWED

Wilderness Areas	A wilderness Area is defined as 'underdeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value' "Wilderness Act" (16 U.S.C. 1 1 21 (note)) Source: National Wilderness Preservation System U.S. Forest Service, U.S. Fish and Wildlife Service, National Park Service, Bureau of Land Mgt. Source: U.S. Geological Survey – National Atlas of the United States
Wildlife Preserves and Refuges	A Wildlife Preserve is defined as 'an area specifically managed to protect identified ecologically significant natural communities or rare species. Source: U.S. Fish & Wildlife Service – National Wildlife Refuges Source: U.S. Geological Survey – National Atlas of the United States
Natural Landmarks	A National Natural Landmark has been determined to represent nationally significant geological and ecological examples of the Nation's natural heritage. "Historic Sites Act"(16 U.S.C. 461 et seq) Source: U.S. National Park Service– National Registry of Natural Landmarks
Historic Places and Landmarks	Districts, sites, buildings, structures or objects, significant in American history, architecture, archaeology, engineering and culture, that are listed, or are eligible for listing, in the National Register of Historic Places. "Historic Sites Act"(16 U.S.C. 461 et seq) Source: U.S. National Park Service– National Registry of Historic Places
Wild and Scenic Rivers	Rivers with their immediate environments which possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected " Wild and Scenic Rivers Act" (16 U.S.C. 1271-1287) Source: U.S. National Park Service – Wild and Scenic Rivers Inventory Source: U.S. Geological Survey – National Atlas of the United States
Floodplain	A plain along a river, formed from sediment deposited by floods – identified to have a hazardous potential for future floods. Source: Federal Emergency Management Agency – Flood Insurance Rate Maps
National Wetlands Inventory	U.S. Fish & Wildlife records of wetland locations and classification. The data was compiled to provide consultants, planners, and resource managers with information on wetland location and type in order to document, protect, and manage such areas. Source: U.S. Fish and Wildlife Service National Wetlands Inventory.
Threatened and Endangered Species	Source: U.S. Fish and Wildlife Service

Banks Environmental Data, Inc. P.O. Box 12851, Capitol Station Austin, Texas 78711-2851
1601 Rio Grande, Ste. 500 Austin, Texas 78701 512-478-0059 FAX 512-478-1433
E-Mail Banks @ banksinfo.com www.banksinfo.com



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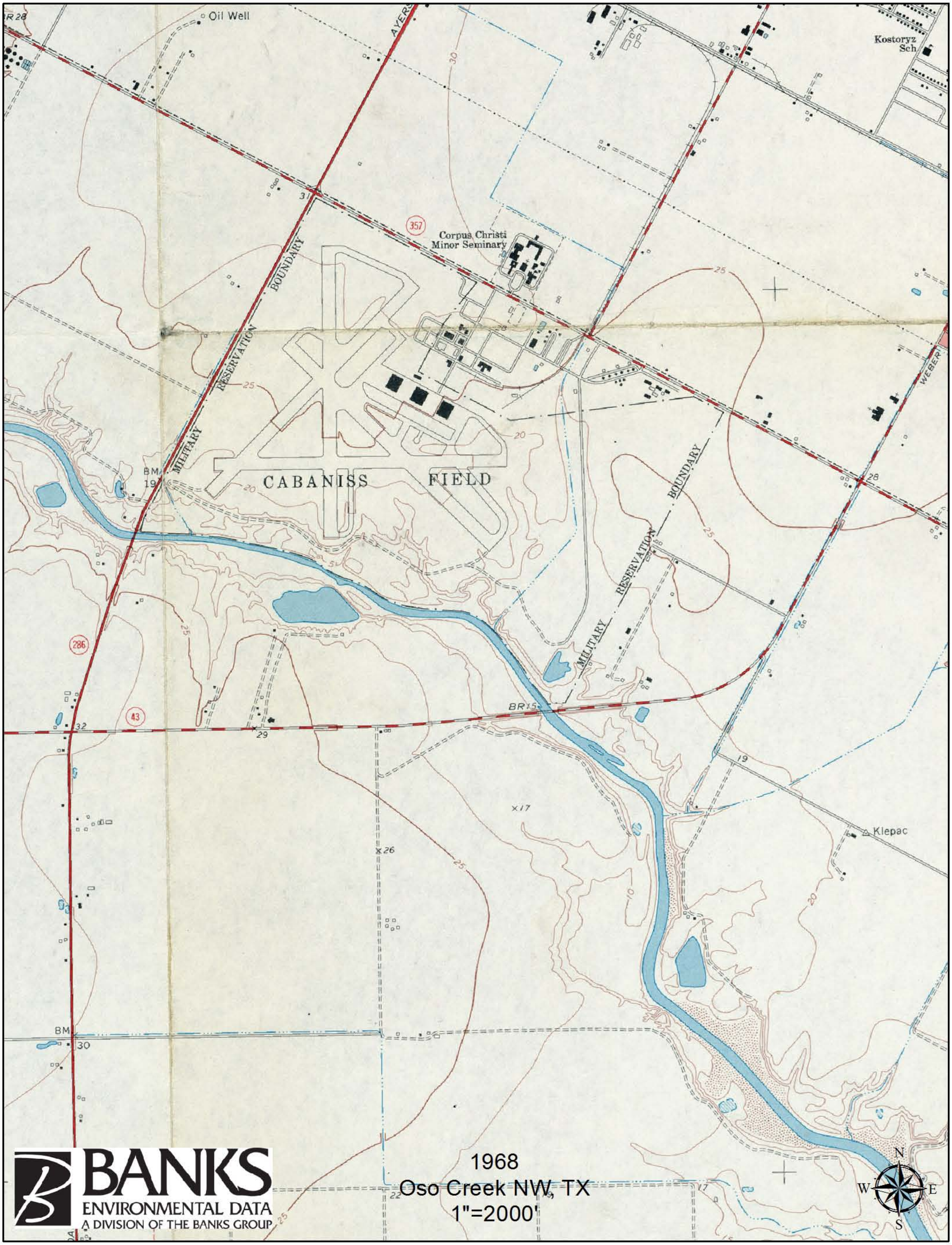
1951
Oso Creek NW, TX
1"=2000'



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Oso Creek NW, TX
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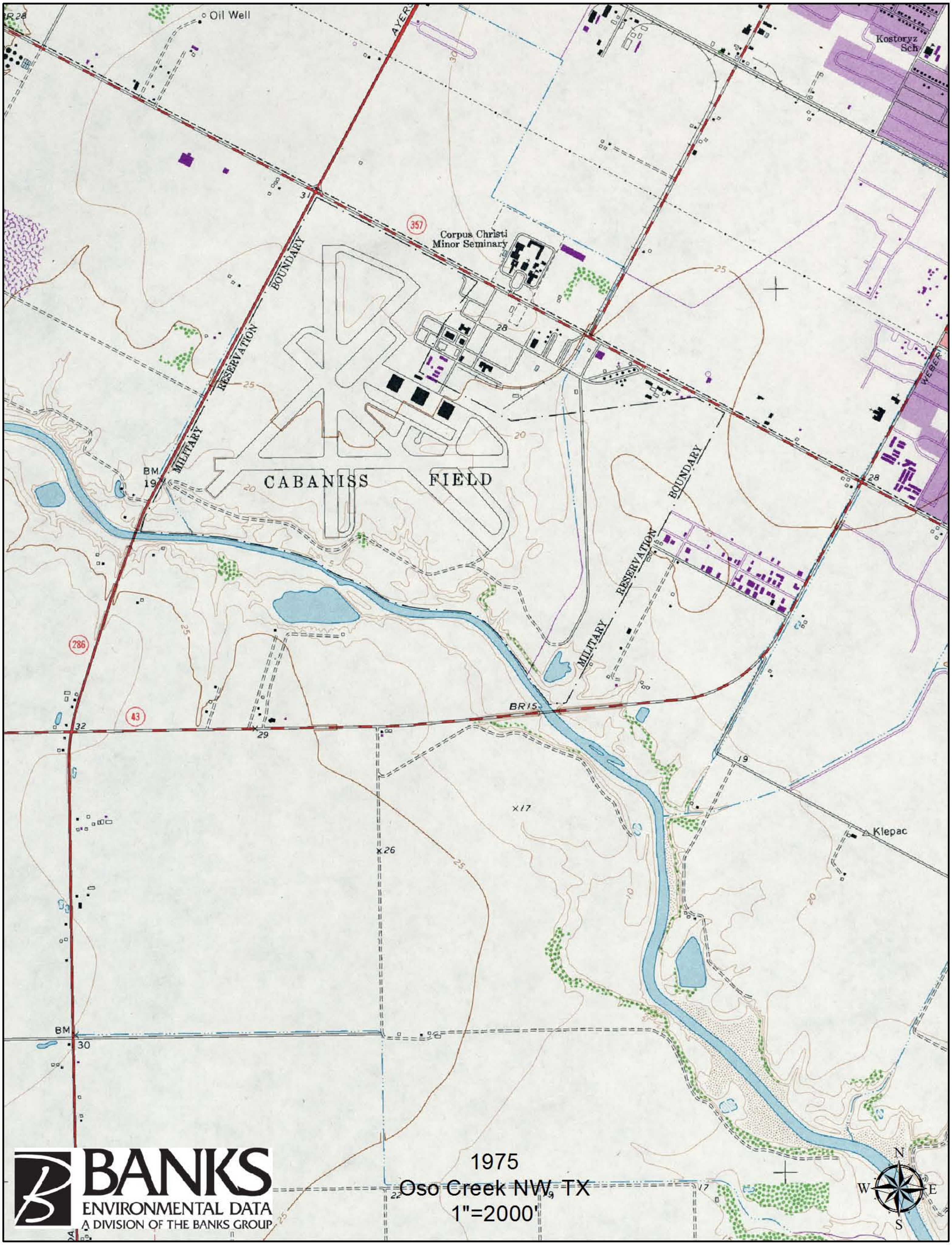

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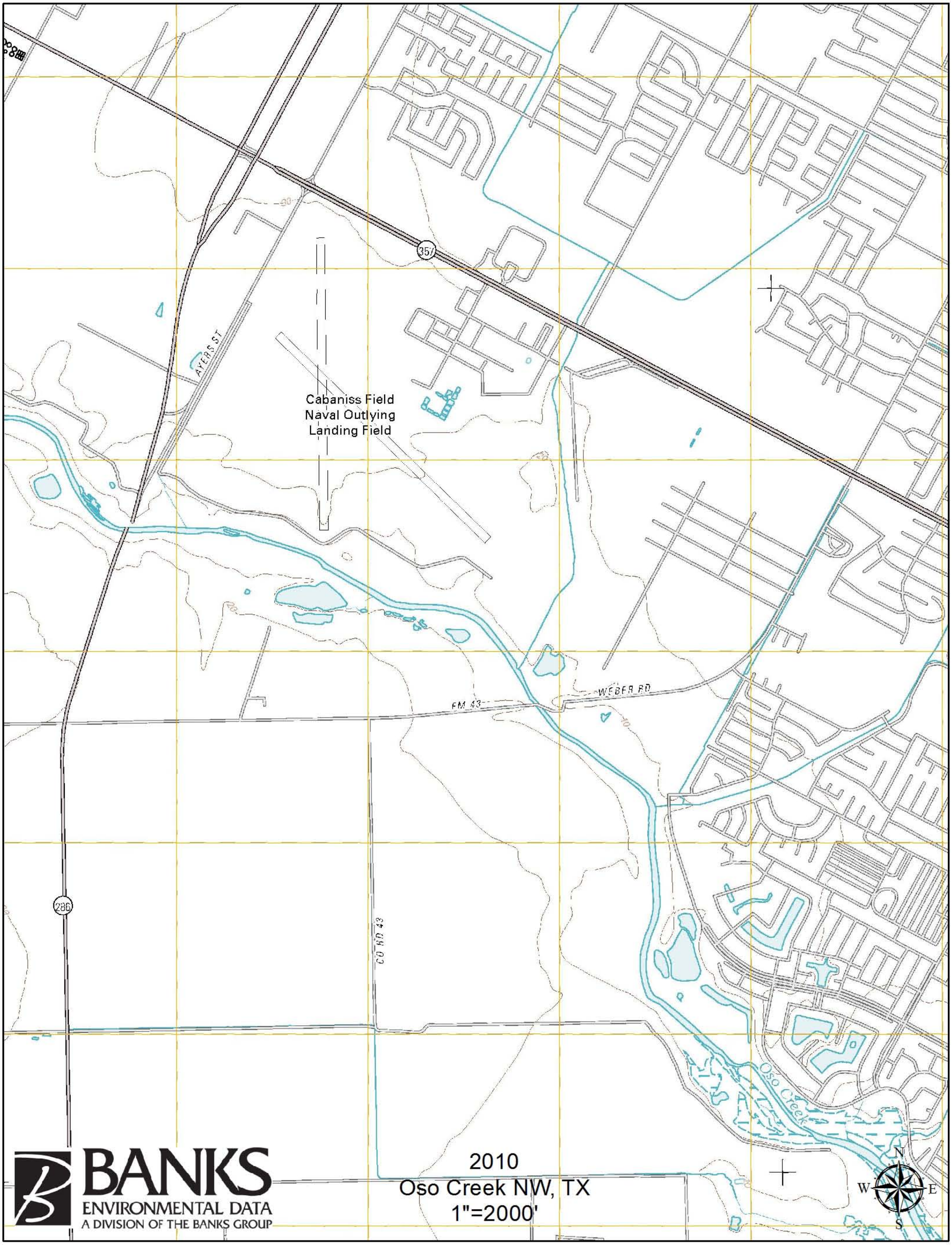
1975
Oso Creek NW, TX
1"=2000'


357
AYERS ST
Cabaniss Field
Naval Outlying
Landing Field
WEBER RD
FM 43
286
CO RD 43
Oso Creek
N
W
E
S
BANKS
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2010
Oso Creek NW, TX
1"=2000'

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP	**Aquifer Report**
	December 2, 2011

CLIENT

TETRA TECH NUS, INC.-HOUSTON Attn:
Larry Basilio
2901 Wilcrest Drive, #405
Houston, TX 77042-6012
Phone: (832)251-5160
Fax: 1-832-251-5190

SITE

NALF Cabaniss
Corpus Christi, TX
(Nueces County)
Client #: 1079460

Banks Project #: ES87845

Banks Environmental Data, Inc.
P.O. Box 12851, Capitol Station/Austin, Texas 78711
1601 Rio Grande, suite 500/Austin, TX 78703 512-478-0059 FAX 512-478-1433
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INTRODUCTION

Water is one of the state's most precious natural resources and basic economic commodities. It interrelates with and affects almost every aspect of human and natural existence. The purpose of this report is to provide a general overview of this resource in Texas and the aquifers in which it resides.

Ground-water sources supplied 56 percent of the 13.5 million acre-feet of water used in the state in 1992. Figure 1 illustrates the level of ground-water pumpage by county in 1992. More than 75 percent of the 7.6 million acre-feet of ground-water pumpage was for irrigated agriculture, with municipal use accounting for almost 17 percent of the total pumpage (Fig. 2). Due to its widespread availability and relatively low cost, ground water accounts for about 69 percent of the total water used for irrigation and about 41 percent of the water used for municipal needs (Fig. 3).

The Texas Water Development Board (TWDB) has identified and characterized nine major and 20 minor aquifers in the state based on the quantity of water supplied by each. A major aquifer is generally defined as supplying large quantities of water in large areas of the state. Minor aquifers typically supply large quantities of water in small areas or relatively small quantities in large areas. The major and minor aquifers, as presently defined, underlie approximately 81 percent of the state. Lesser quantities of water may also be found in the remainder of the state.

The surface extent, or outcrop, of each aquifer is the area in which the host formations are exposed at the land surface. This area corresponds to the principal recharge zone for the aquifers. Ground water encountered within this area is normally under unconfined, water-table conditions and is most susceptible to contamination.

Some water-bearing formations dip below the surface and are covered by other formations. Aquifers with this characteristic are common, although not exclusive, east and south of Interstate Highway 35. Aquifers covered by less permeable formations, such as clay, are confined under artesian pressure. Delineations of the downdip boundaries of such aquifers as the Edwards (BFZ), Trinity, and Carrizo-Wilcox are based on chemical quality criteria.

Aquifer water quality is described in terms of dissolved-solids concentrations expressed in milligrams per liter (mg/l) and is classified as fresh (less than 1,000 mg/l), slightly saline (1,000 - 3,000 mg/l), moderately saline (3,000 - 10,000 mg/l), and very saline (10,000 - 35,000 mg/l). Aquifer downdip boundaries shown on the maps delineate extents of the aquifers that contain ground water with dissolved-solids concentrations that meet the needs of the aquifers' primary uses. The quality limit for most aquifers is 3,000 mg/l dissolved solids, which meets most agricultural and industrial needs. However, the limit for the Edwards (BFZ) is 1,000 mg/l for public water supply use. The limit for the Dockum and Rustler is 5,000 mg/l, and10,000 mg/l for the Blaine for specific irrigation and industrial uses. Some aquifers, such as the Hueco Bolson and Lipan, have depth limitations at which water of acceptable quality can be obtained.

The following descriptions provide general information pertaining to location, geology, quality, yield, common use, and specific problems of the aquifers throughout their Texas extents. Geologic ages of the aquifers are summarized in Table 1. The aquifers are organized in the order of their magnitude of annual withdrawals, with the aquifer experiencing the largest amount of pumpage listed first. A more thorough understanding of each aquifer may be gained by referring to the suggested reports following each aquifer description.

The characterization of the state's ground-water resources and the development of the maps depicting these aquifers have been accomplished by many staff members of the TWDB over many years. The aquifer maps and reports undergo continual revision to reflect the latest information available. Individual aquifer maps accompanying each description are shown at different scales, but are configured from the same map projection as the major and minor aquifer maps.

The authors gratefully acknowledge all who provided input into this report and specifically thank Phil Nordstrom, Richard Preston, and David Thorkildsen for their valuable contributions. Mark Hayes and Steve Gifford also gave significantly of their time and talents in producing the illustrations.

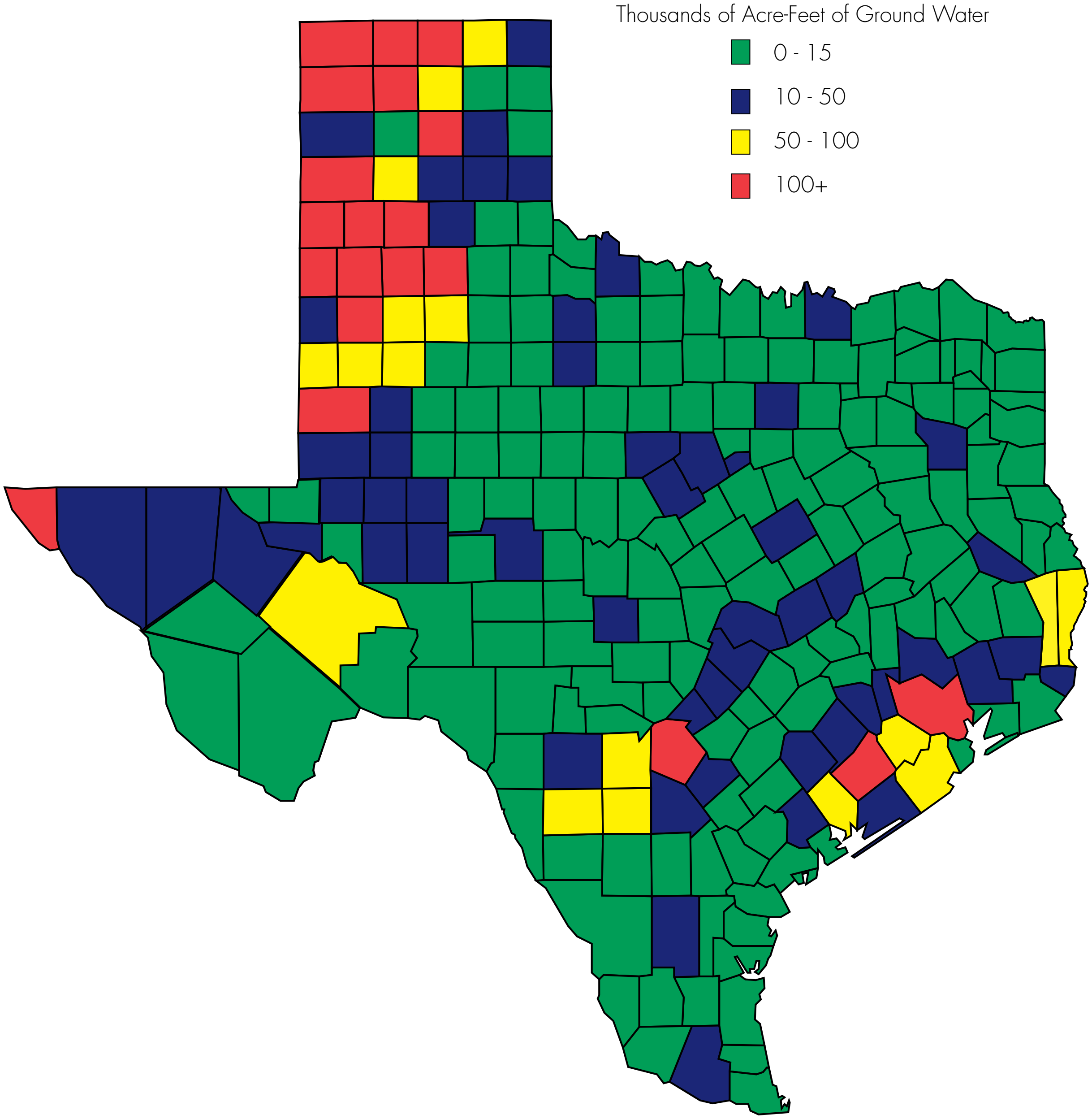


Figure 1. 1992 Ground-Water Pumpage

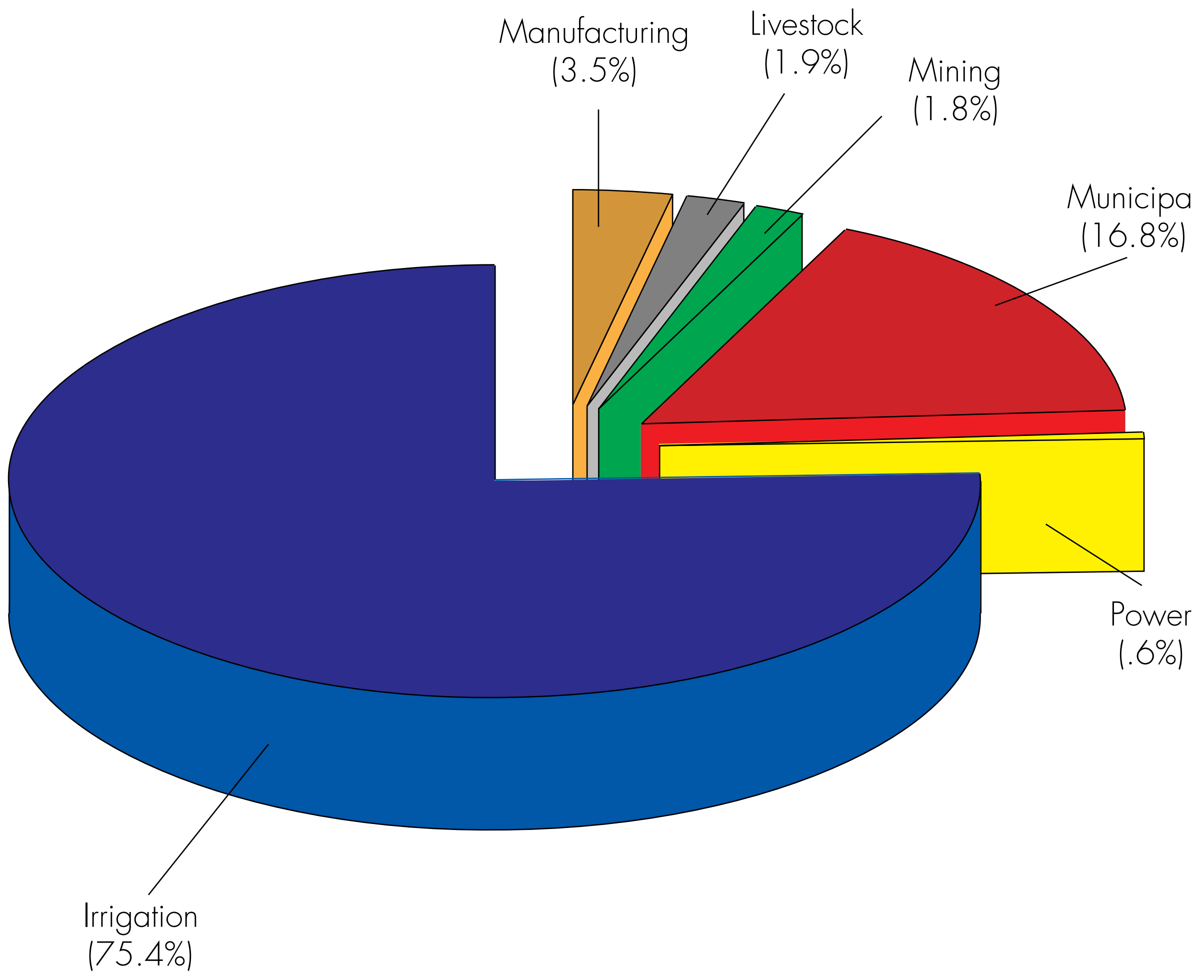


Figure 2. 1992 Ground-Water Use

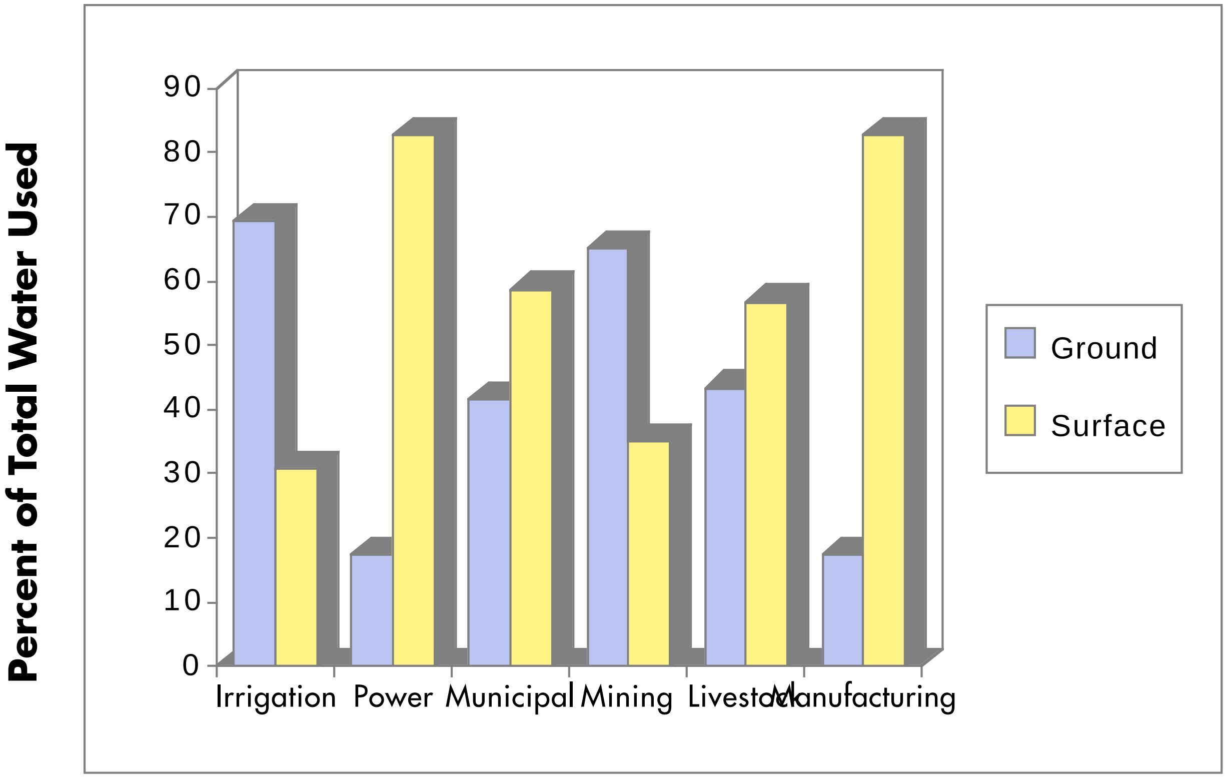


Figure 3. 1992 Water Use by Type

Table 1. Geologic Ages of Aquifers in Texas

Era	Period	Aquifer
Cenozoic	Quaternary	Cenozoic Pecos Alluvium Brazos River Alluvium West Texas Bolsons Seymour Lipan
	Tertiary	Gulf Coast Carrizo-Wilcox Hueco-Mesilla Bolson Ogallala Sparta Igneous Queen City
Mesozoic	Cretaceous	Woodbine Edwards-Trinity (Plateau) Edwards-Trinity (High Plains) Edwards (BFZ) Trinity Nacatoch Blossom Rita Blanca
	Jurassic	Rita Blanca
	Triassic	Dockum
Paleozoic	Permian	Blaine Bone Spring-Victorio Peak Capitan Reef Complex Rustler Lipan
	Pennsylvanian	Marble Falls Marathon
	Mississippian	Marathon
	Devonian	Marathon
	Silurian	Marathon
	Ordovician	Ellenburger-San Saba Marathon
	Cambrian	Ellenburger-San Saba Hickory
Precambrian		

GENERAL GROUND-WATER PRINCIPLES

Vast quantities of water percolate underground through geologic formations known as *aquifers*. The occurrence of water within the formations takes different forms. In sedimentary rocks, such as those composed of sand and gravel, water is contained in the spaces between grains. Some of the largest aquifers in Texas, including the Ogallala, Gulf Coast, and Carrizo-Wilcox, hold water in this fashion. Limestone formations, such as the Edwards, contain water in crevices and caverns caused in part by dissolution of the limestone by ground water. A third occurrence of ground water is within the cracks, fractures, and joints developed in harder formations such as granite and volcanic rock.

Two rock characteristics of fundamental importance related to the occurrence of ground water are *porosity,* which is the amount of open space contained in the rock, and *permeability,* the ability of the porous material to allow fluids to move through it. In sedimentary rocks consisting of sandstone, gravel, clay, and silt, the porosity is a function of the size, shape, sorting, and degree of cementation of the grains. In limestone and other harder rock, the porosity is a function of openings such as cracks, crevices, and caverns. Fine-grained sediments, such as clay and silt, usually have high porosity. However, due to the small size of the voids in these sediments, the permeability is low, and these formations do not readily yield or transmit water. For a geologic formation to be an aquifer, it must be porous, permeable, and yield water in sufficient quantities to provide a usable supply.

Recharge is the addition of water to an aquifer. This water may be absorbed from precipitation, streams, and lakes either directly into a formation or indirectly by way of leakage from another formation. Generally, only a small portion of the total precipitation seeps down through the soil cover to reach the water table. Among the factors that influence the amount of recharge to an aquifer are the amount and frequency of precipitation; the areal extent of the outcrop or intake area; the topography, type and amount of vegetation, and condition of soil cover in the outcrop area; and the ability of the aquifer to accept recharge and transmit it to areas of discharge.

Ground water is said to occur under either *water-table* or *artesian* conditions. Ground water in the outcrop of many aquifers is unconfined and under water-table conditions. Water under these conditions is under atmospheric pressure and will rise or fall in response to changes in the volume of water stored. In most places, the configuration of the water table approximates the topography of the land surface. In a well penetrating an unconfined aquifer, water will rise to the level of the water table.

Away from the outcrop, ground water in the aquifer may occur beneath a relatively impermeable bed. Here, water is under artesian, or confined, conditions, and the impermeable bed confines the water under a pressure greater than atmospheric. In a well penetrating an artesian aquifer, water will rise above the confining bed. If the pressure head is large enough to cause the water in the well to rise above the land surface, the well will flow.

Ground water moves from areas of recharge to areas of discharge, or from points of higher water level to points of lower water level. Under normal artesian conditions, movement of ground water usually is in the direction of the aquifer's regional dip. Under water-table conditions, the slope of the water table, and consequently the direction of ground-water movement, are usually closely related to the slope of the land surface. However, in the case of both artesian and water-table conditions, local anomalies develop in which some water moves toward pumpage areas. The rate of ground-water movement in an aquifer is normally very slow, or in the magnitude of a few feet to a few hundred feet per year.

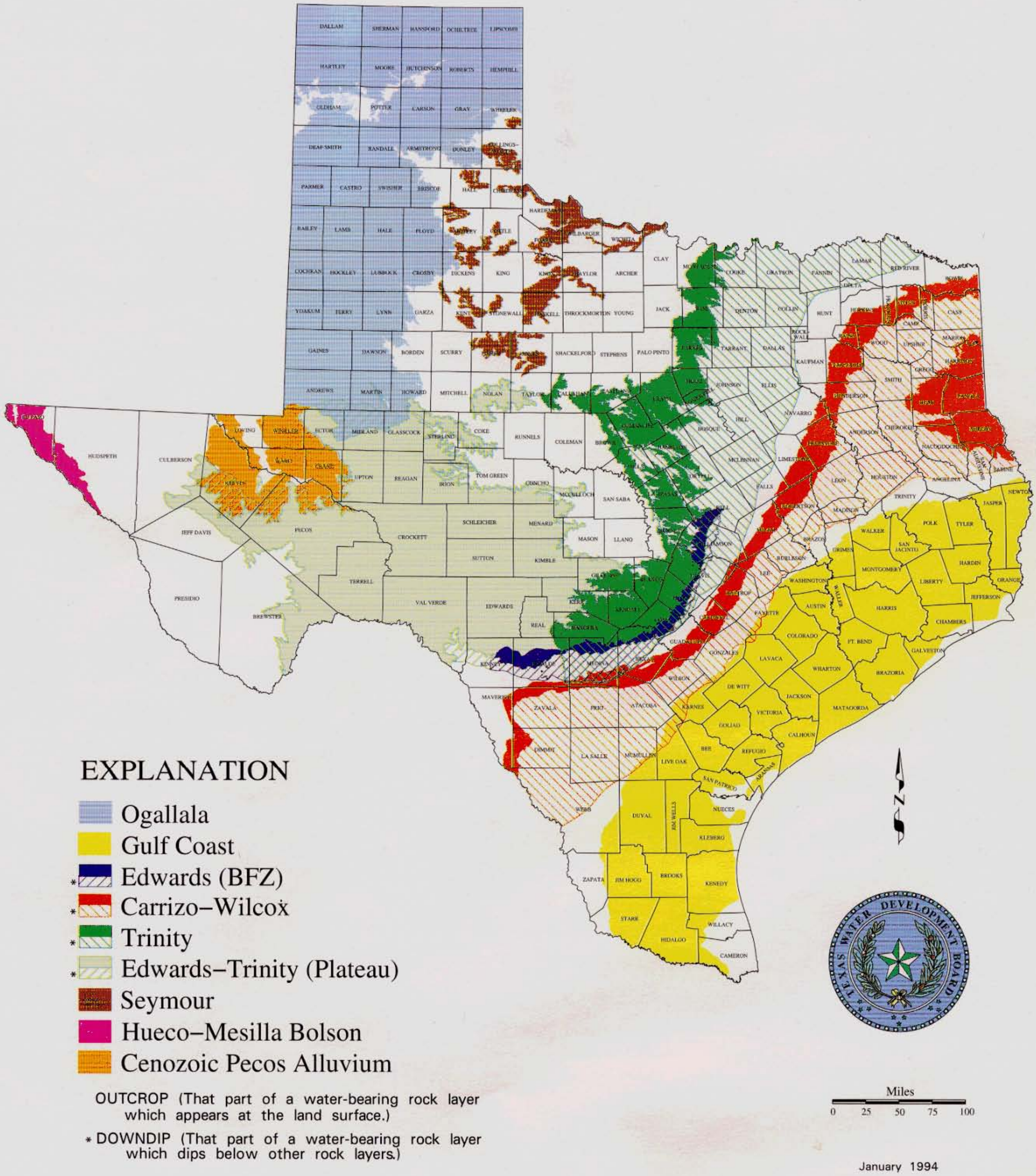
Discharge is the loss of water from an aquifer by either artificial or natural means. Artificial discharge takes place from flowing and pumped water wells, and from drainage ditches, gravel pits, or other excavations that intersect the water table. Natural discharge occurs as springs, evaporation, transpiration, and leakage between formations.

Changes in water levels indicate a change in the ground-water storage in an aquifer. These changes can be due to many causes, with some regionally significant and others confined to more local areas. In short, water-level fluctuations are caused by changes in recharge and discharge.

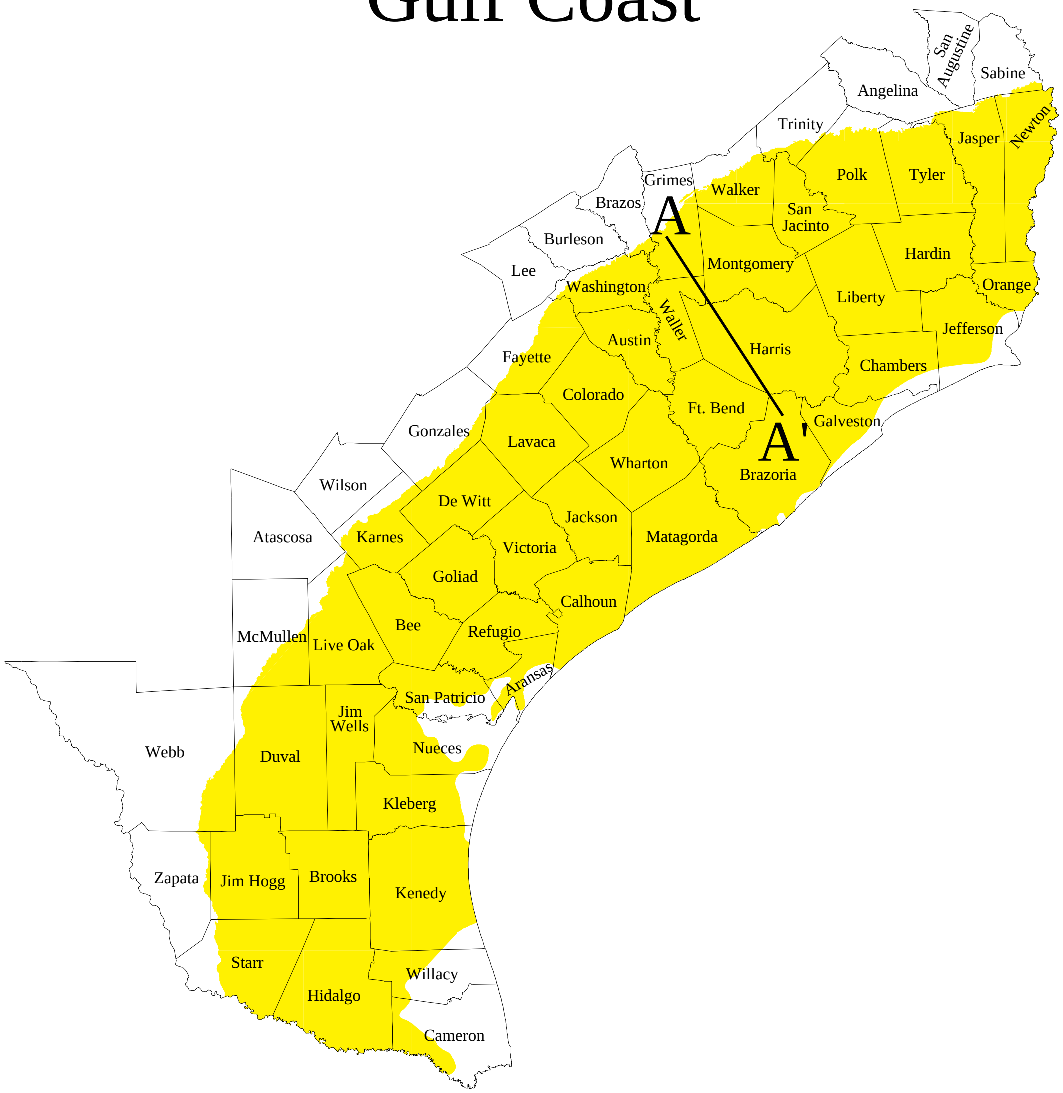
When recharge is reduced, as in the case of a drought, or when pumpage is greater than recharge, some of the water discharged from the aquifer must be withdrawn from storage, resulting in a decline of water levels. If water levels are lowered excessively, springs and shallow wells may go dry. However, when sufficient precipitation resumes or pumpage is reduced, the volume of water drained from storage may be replaced and water levels will rise accordingly. Changes in water levels in water-table aquifers are generally less pronounced than in artesian aquifers.

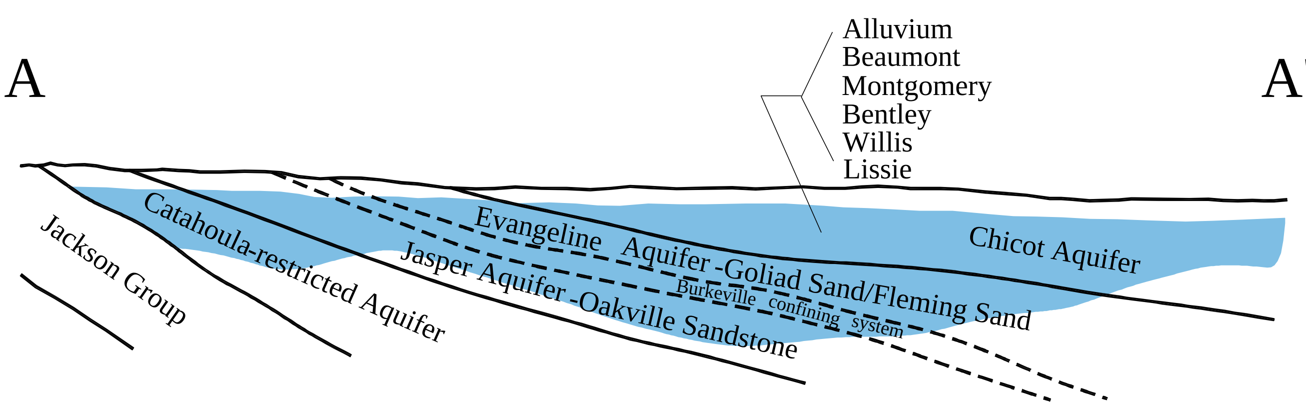
When a water well is pumped, water levels in the vicinity are drawn down in the shape of an inverted cone with its apex at the pumped well. The development of these *cones of depression* depends on the aquifer's ability to store and move water and on the rate of pumping. If the cone of one well overlaps the cone of another, additional lowering of water levels will occur as the wells compete for the same water.

MAJOR AQUIFERS OF TEXAS



Gulf Coast





Modified from Baker, 1979

Gulf Coast Aquifer

The Gulf Coast aquifer forms a wide belt along the Gulf of Mexico from Florida to Mexico. In Texas, the aquifer provides water to all or parts of 54 counties and extends from the Rio Grande northeastward to the Louisiana-Texas border. Municipal and irrigation uses account for 90 percent of the total pumpage from the aquifer. The Greater Houston metropolitan area is the largest municipal user, where well yields average about 1,600 gal/min.

The aquifer consists of complex interbedded clays, silts, sands, and gravels of Cenozoic age, which are hydrologically connected to form a large, leaky artesian aquifer system. This system comprises four major components consisting of the following generally recognized water-producing formations. The deepest is the Catahoula, which contains ground water near the outcrop in relatively restricted sand layers. Above the Catahoula is the Jasper aquifer, primarily contained within the Oakville Sandstone. The Burkeville confining layer separates the Jasper from the overlying Evangeline aquifer, which is contained within the Fleming and Goliad sands. The Chicot aquifer, or upper component of the Gulf Coast aquifer system, consists of the Lissie, Willis, Bentley, Montgomery, and Beaumont formations, and overlying alluvial deposits. Not all formations are present throughout the system, and nomenclature often differs from one end of the system to the other. Maximum total sand thickness ranges from 700 feet in the south to 1,300 feet in the northern extent.

Water quality is generally good in the shallower portion of the aquifer. Ground water containing less than 500 mg/l dissolved solids is usually encountered to a maximum depth of 3,200 feet in the aquifer from the San Antonio River Basin northeastward to Louisiana. From the San Antonio River Basin southwestward to Mexico, quality deterioration is evident in the form of increased chloride concentration and saltwater encroachment along the coast. Little of this ground water is suitable for prolonged irrigation due to either high salinity or alkalinity, or both. In several areas at or near the coast, including Galveston Island and the central and southern parts of Orange County, heavy municipal or industrial pumpage had previously caused an updip migration, or saltwater intrusion, of poor-quality water into the aquifer. Recent reductions in pumpage here have resulted in a stabilization and, in some cases, even improvement of ground-water quality.

Years of heavy pumpage for municipal and manufacturing use in portions of the aquifer have resulted in areas of significant water-level decline. Declines of 200 feet to 300 feet have been measured in some areas of eastern and southeastern Harris and northern Galveston counties. Other areas of significant water-level declines include the Kingsville area in Kleberg County and portions of Jefferson, Orange, and Wharton counties. Some of these declines have resulted in compaction of dewatered clays and significant land surface subsidence. Subsidence is generally less than 0.5 foot over most of the Texas coast, but has been as much as nine feet in Harris and surrounding counties. As a result, structural damage and flooding have occurred in many low-lying areas along Galveston Bay in Baytown, Texas City, and Houston. Conversion to surface-water use in many of the problem areas has reversed the decline trend.

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BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP	Annual Rainfall Report
	December 2, 2011

CLIENT

TETRA TECH NUS, INC.-HOUSTON Attn: Larry Basilio
2901 Wilcrest Drive, #405
Houston, TX 77042-6012
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SITE

NALF Cabaniss
Corpus Christi, TX
(Nueces County)
Client #: 1079460

Banks Project #: ES87845

Banks Environmental Data, Inc.
P.O. Box 12851, Capitol Station/Austin, Texas 78711
1601 Rio Grande, suite 500/Austin, TX 78703 512-478-0059 FAX 512-478-1433
E-Mail - CustomerService@banksinfo.com www.banksinfo.com

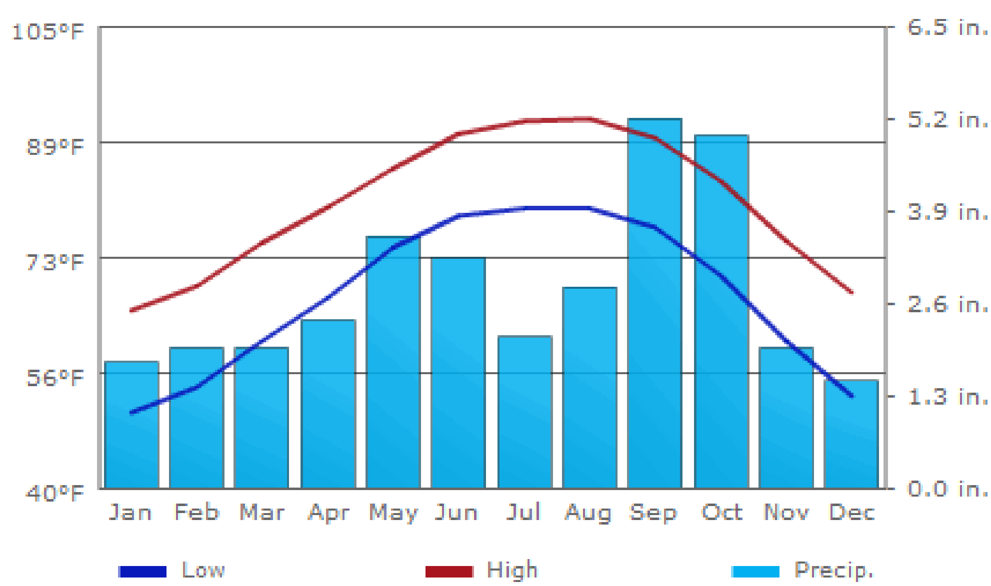
Climate – Corpus Christi NAS – Texas

Temperature - Precipitation

	Jan	Feb	March	April	May	June
Average high in °F	65	68	74	80	85	90
Average low in °F	51	54	61	67	74	78
Av. precipitation - inch	1.77	1.97	1.97	2.36	3.54	3.23

	July	Aug	Sep	Oct	Nov	Dec
Average high in °F	92	92	89	83	75	67
Average low in °F	79	79	77	70	61	53
Av. precipitation - inch	2.13	2.83	5.2	4.96	1.97	1.5

Corpus Christi NAS Climate Graph - Texas Climate Chart



Banks Environmental Data, Inc. P.O. Box 12851, Capitol Station Austin, Texas 78711-2851
1601 Rio Grande, Ste. 500 Austin, Texas 78701 512-478-0059 FAX 512-478-1433
E-Mail Banks @ banksinfo.com www.banksinfo.com

Totals and averages

Annual average high temperature	80.0 °F
Annual average low temperature	66.9 °F
Average temperature	73.4 °F
Average annual precipitation	33.4 in.

Source: www.usclimatedata.com

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP	Soil Survey Report
	December 2, 2011

CLIENT

TETRA TECH NUS, INC.-HOUSTON Attn: Larry Basilio
2901 Wilcrest Drive, #405
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(Nueces County)
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Banks Project #: ES87845

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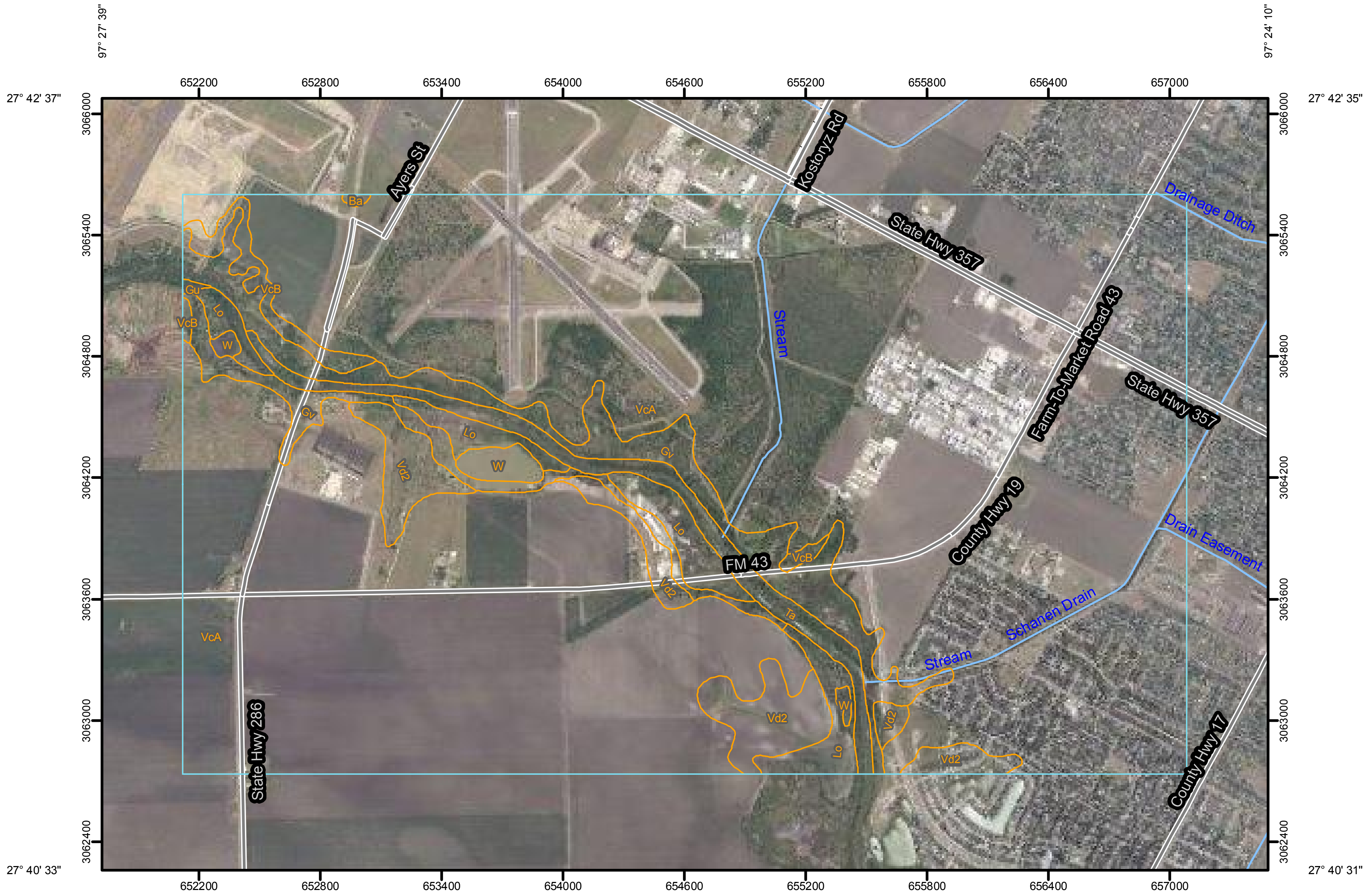
E-Mail - CustomerService@banksinfo.com www.banksinfo.com

Soil Map—Nueces County, Texas
(NALF Cabaniss)



Map Scale: 1:27,300 if printed on A size (8.5" x 11") sheet.

N

Meters
0 350 700 1,400 2,100

Feet
0 1,500 3,000 6,000 9,000

USDA Natural Resources Conservation Service

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Units

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features

- Gully
- Short Steep Slope
- Other

Political Features

- Cities

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:27,300 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 14N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Nueces County, Texas
Survey Area Data: Version 9, Oct 26, 2009

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Nueces County, Texas (TX355)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Ba	Edroy clay	1.6	0.0%
Gu	Gullied land	1.5	0.0%
Gv	Gullied land, saline	207.0	5.9%
Lo	Aransas clay, saline	96.8	2.8%
Ta	Tidal flats	76.6	2.2%
VcA	Victoria clay, 0 to 1 percent slopes	2,949.8	83.8%
VcB	Victoria clay, 1 to 3 percent slopes	34.1	1.0%
Vd2	Monteola clay, eroded	129.6	3.7%
W	Water	21.3	0.6%
Totals for Area of Interest		**3,518.2**	**100.0%**

APPENDIX I

SCREENING-LEVEL ECOLOGICAL RISK ASSESSMENT

Comprehensive **L**ong-term **E**nvironmental **A**ction **N**avy

CONTRACT NUMBER N62467-04-D-0055

Rev. 1
July 2013

Final

Screening Level Ecological Risk Assessment Report

Incinerator Disposal Site and Former Skeet Range

Naval Auxiliary Landing Field Cabaniss
Corpus Christi, Texas

Contract Task Order 0135

July 2013

Naval Facilities Engineering Command
NAVFAC SOUTHEAST
NAS Jacksonville
Jacksonville, Florida 32212-0030

TETRA TECH

FINAL
SCREENING-LEVEL
ECOLOGICAL RISK ASSESMENT REPORT

INCINERATOR DISPOSAL SITE AND FORMER SKEET RANGE

NAVAL AUXILIARY LANDING FIELD CABANISS
CORPUS CHRISTI, TEXAS

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Naval Facilities Engineering Command
Southeast
NAS Jacksonville
Jacksonville, Florida 32212-0030

Submitted by:
Tetra Tech, Inc.
661 Anderson Drive, Foster Plaza 7
Pittsburgh, Pennsylvania 15220

CONTRACT NUMBER N62467-04-D-0055
CONTRACT TASK ORDER 0135

JULY 2013

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FIGURES

NUMBER

(a) Figures listed are located at the end of the section in which they are referenced.

ACRONYMS

BAF	Bioaccumulation factor
BERA	Baseline Ecological Risk Assessment
bgs	Below ground surface
CCME	Canadian Council of Ministers of the Environment
CDI	Chronic Daily Intake
CLEAN	Comprehensive Long-term Environmental Action Navy
COPC	Chemical of potential concern
CSM	Conceptual site model
CTO	Contract Task Order
Eco SSL	Ecological Soil Screening Level
EEQ	Ecological effects quotient
EPC	Exposure point concentration
ERA	Ecological Risk Assessment
HMW	High Molecular Weight
INRMP	Integrated Natural Resources Management Plan
LEL	Lowest Effect Level
LMW	Low Molecular Weight
LOAEL	Lowest-observed-adverse-effects level
MC	Munitions constituents
MI	Multi-incremental
MG/KG	Milligrams per kilogram
NALF	Naval Auxiliary Landing Field
NAS	Naval Air Station
NAVFAC SE	Naval Facilities Engineering Command Southeast
Navy	Department of the Navy
NOAEL	No-observed-adverse-effects level
ORNL	Oak Ridge National Laboratory
PAH	Polycyclic aromatic hydrocarbon
QA	Quality assurance
RI	Remedial investigation
SEL	Severe effect level
SERA	Screening-Level Ecological Risk Assessment
SI	Site Inspection
SQG	Soil Quality Guideline
Tetra Tech	Tetra Tech, Inc.

ACRONYMS (Continued)

TCEQ	Texas Commission on Environmental Quality
TNC	The Nature Conservancy of Texas
TNRCC	Texas Natural Resource Conservation Commission
TPWP	Texas Parks and Wildlife Department
TRV	Toxicity Reference Value
µg/kg	Micrograms per kilogram
USEPA	U. S. Environmental Protection Agency

1.0 INTRODUCTION

Tetra Tech, Inc. (Tetra Tech) was contracted by the Department of the Navy (Navy), Naval Facilities Engineering Command Southeast (NAVFAC SE) to perform a remedial investigation (RI) and associated reporting for the former Incinerator Disposal Site and Skeet Range located at Naval Auxiliary Landing Field (NALF) Cabaniss, Corpus Christi, Texas. Figure 1-1 shows the general location of NALF Cabaniss and the location of the former Incinerator Disposal Site and Skeet Range at NALF Cabaniss. This work was performed under Contract Task Order (CTO) No. 0135 under the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract No. N62467-04-D-0055.

1.1 PURPOSE OF REPORT

The goal of this Screening-Level Ecological Risk Assessment (SERA) is to determine whether adverse ecological impacts are present as a result of exposure to chemicals released to the environment through historical activities at the former Incinerator Disposal Site and Skeet Range at NALF Cabaniss, in Corpus Christi, Texas.

The SERA was conducted in accordance with guidance presented in the following documents:

- Final Guidelines for Ecological Risk Assessment (USEPA, 1998).
- Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments (USEPA, 1997).
- Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas (TNRCC, 2001)
- Update to Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas RG-263 (Revised) (TCEQ, 2006)
- Department of Navy (Navy) Environmental Policy Memorandum 97-04: Use of Ecological Risk Assessments dated May 16, 1997.
- Navy Policy for Conducting Ecological Risk Assessments (1999).

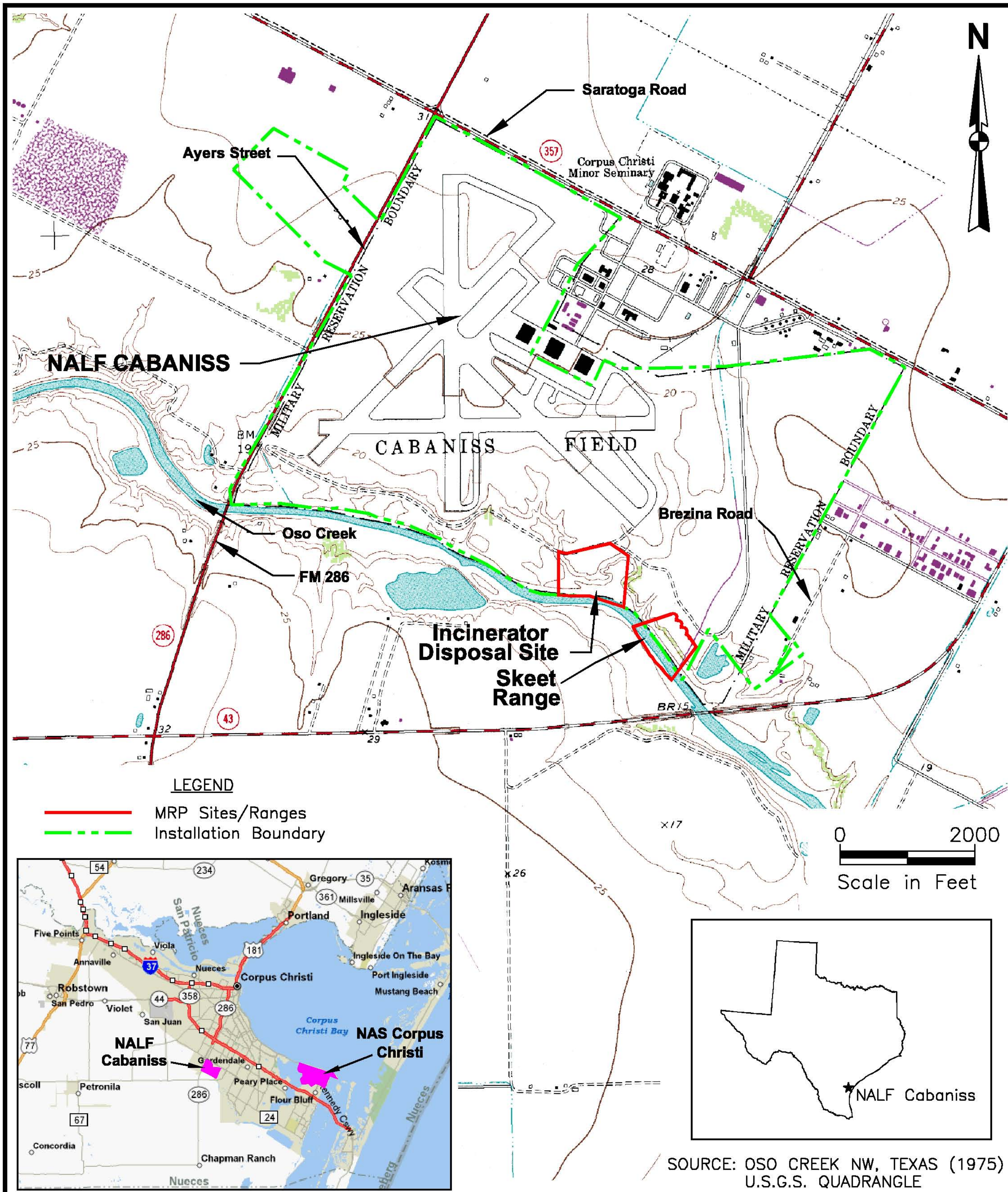
1.2 SCOPE OF WORK

This SERA consists of Steps 1, 2, and 3a of the eight step U. S. Environmental Protection agency (USEPA) Ecological Risk Assessment (ERA) process discussed in USEPA guidance and the Navy Policy for Conducting ERAs, and Tier 1 and 2 of the Texas Commission on Environmental Quality (TCEQ) ERA guidance. The first two screening steps of the USEPA guidance correspond with Tier 1 of the Navy Policy, and Elements 1 through 6 of the TCEQ guidance comprise the SERA, where conservative exposure estimates are compared to screening-level and threshold toxicity values. Step 3a of the USEPA guidance is the first step of a baseline ecological risk assessment (BERA) and consists of refining the conservative assumptions to further focus the ERA on the chemicals and receptors of greatest concern at a site. Step 3a corresponds with the first part of Tier 2 of the Navy Policy. This step is similar to Element 7 in the TCEQ guidance, which consists of a less conservative analysis. The remaining steps of the ERA process require the collection of additional data and the performance of site-specific studies (e.g., toxicity testing, biological surveys). These remaining steps generally occur after Steps 1, 2, and 3a are completed and it is determined that those additional data are necessary to better evaluate ecological risks.

1.3 REPORT ORGANIZATION

Separate SERAs were conducted for the two sites (Incinerator Disposal Site and the Skeet Range) but the methodology was the same for both sites. With this in mind, Sections 2.0 through 6.0 present the general methodology that was followed for conducting the SERAs, and Section 7.0 presents the separate site-specific SERAs. Section 8.0 then presents the uncertainty analysis that pertains to both sites, while Section 9.0 presents the overall conclusions for both sites.

01821FIG1-1.dwg 2-1-12 GS



DRAWN BY GS	DATE 2/1/12	AREA LOCATION MAP NALF CABANISS CORPUS CHRISTI, TEXAS	CONTRACT NO. 112G01821
CHECKED BY LB	DATE 2/1/12		OWNER NO. 0135
REVISED BY	DATE		APPROVED BY / DATE
SCALE AS NOTED		NAVFAC	DRAWING NO. FIGURE 1-1 / REV. 0

2.0 PROBLEM FORMULATION

Problem formulation is the first phase of an SERA and discusses the goals and focus of the assessment. It includes general descriptions of the site with emphasis on the habitats and ecological receptors present. This phase also involves characterization of site-related chemicals, chemical sources, migration routes, and an evaluation of routes of chemical exposure. The assessment and measures of effects to be evaluated are also selected. Finally, a conceptual site model (CSM) is developed that describes how chemicals associated with the site in question may come into contact with ecological receptors.

2.1 ENVIRONMENTAL SETTING

The objectives of this step are to initially identify and characterize the habitats and ecological resources throughout the site, as well as ecological receptors that could be adversely affected by chemicals. Most of the information in this section was obtained from the Naval Air Station (NAS) Corpus Christi 2006 Integrated Natural Resources Management Plan (INRMP) (Navy, 2006) and an April 2011 Ecological Survey conducted by Tetra Tech of the Incinerator Disposal Site and Skeet Range. A copy of the ecological survey is presented in Appendix A.

The former Incinerator Disposal Site is approximately 17 acres in size. It is bounded to the south by Oso Creek and Perimeter Road runs along the northern boundary of the site. The majority of the Incinerator Disposal Site is covered with dense vegetation. Open marshes are present on the eastern, southern, and western sections.

The former Skeet Range is approximately seven acres in size and is located along Perimeter Road, approximately 1000 feet southeast of the Incinerator Disposal Site. Perimeter Road divides the Skeet Range roughly in half. Although Oso Creek generally forms the southwest boundary and the narrow unnamed storm water diversion channel to Oso Creek forms the eastern boundary (the actual site boundary extends a little south of the creek) the study area was limited to NALF Cabaniss proper as decided by the Project Team. That is because analytical results from the Site Inspection (SI) indicated that the possibility of impacts to these areas was minimal. There were no munitions constituents (MC) impacts detected in the surface water or sediments samples separating NALF Cabaniss from these two areas and these areas are at the extreme edges of the shotfall zone.

Figure 1-1 shows the locations of the sites. During the April 2011 ecological survey, three primary types of vegetative cover were observed within the survey area at the Incinerator Disposal Site while two were observed at the Skeet Range. Approximately 70 percent of both sites were heavily vegetated with a mix of upland woody shrubs and small trees typical of early to mid-successional woodlands in the southern plains. An open, emergent marsh occupied approximately 20 percent of the eastern and southern sections of the Incinerator Disposal Site. Riparian woodlands are present along Oso Creek at both sites.

The deciduous scrub habitat that covers the majority of the sites creates a suitable cover area for a number of animal species. Commonly observed bird species included white-eyed vireo, northern cardinal, catbird, white-winged dove, and northern mockingbird. The plant species provide food sources such as fruits and seeds that are eaten by avian and mammal species. For example, mesquite beans provide the greater part of the coyote’s summer food as well as food for other mammals including skunk, raccoon and cottontail rabbit.

A narrow riparian woodland is present along the edges of Oso Creek and the storm water conveyance channel. Riparian areas are important travel corridors for some species, and are frequently used as stopover points for migratory birds. The diversity of plant species present along riparian corridors provides shelter and food for birds, mammals, reptiles and upland habitat for many amphibians. Burrowing animals are frequently found in these areas due to the friable nature of alluvial soils.

Emergent wetlands are characterized by a dominance of persistent, herbaceous plants. This wetland type is located in the eastern section of the Incinerator Disposal Site, extends narrowly across the southern section, and broadens to the west. The elevated salinity of the soils has resulted in the development of a halophytic vegetative community. Because of their open nature, marsh areas provide an excellent hunting ground for insectivorous birds and birds of prey. The seeds of the bulrush provide an important food source for ducks, songbirds, and small mammals. The gulf cordgrass provides good cover and nesting habitat for birds and mammals. Common bird species in the marsh include the swamp sparrow, vespid sparrow, Lincoln’s sparrow, northern harrier, and barn swallow. The burrows of small mammals and crayfish were also noted.

Oso Creek is a perennial, freshwater stream channel that flows approximately 28 miles through Nueces County and empties into Oso Bay. The study area is located approximately 10 miles upstream of Oso Bay, just below the upper extent of tidal influence. The main stem of the stream flows mainly through agricultural land. The channel receives a significant portion of its flow through effluent discharges upstream of the study area. The channel was typically 60 to 70 feet in width along the boundary of the Incinerator Disposal Site and flowed to the east. The creek provides habitat for a number of freshwater fish species and food and water source for birds and mammals. Little blue heron, green heron, barn swallows, and black-bellied whistling duck were observed during the site evaluation. Deer and raccoon tracks were noted along the banks of the creek.

The dense nature of the vegetation on the site provides excellent cover for large and small mammals. Only one mammal was sighted during the site evaluation. White-tailed deer were spotted browsing along the edge of Perimeter Road. Various animal tracks were identified along the stream banks and in the muddy flats across the site. Among these were coyote, raccoon, and rabbit along with other smaller rodent species.

Two species of herpetofauna were encountered during the site evaluation; the green anoli and rough green snake. A tree frog was heard near Oso Creek.

Surveys for rare plants and areas of botanical interest were conducted on NAS Corpus Christi by Texas Parks and Wildlife Department (TPWD) in September 1991 and April 1992 (TPWD, 1992). Botanical field surveys were again conducted for NAS Corpus Christi, NALF Waldron, and NALF Cabaniss in April, May, and June 1997 by The Nature Conservancy of Texas (TNC, 1998). During these surveys, no federally listed threatened or endangered species were encountered. Both survey reports concluded that the deep, sandy soils of the Encinal Peninsula are unlikely to support any plant species of federal concern.

No threatened or endangered plant species were encountered at this site, but edaphic and geographic factors point to the strong possibility of several rare species (TNC, 1998). Slender rushpea and south Texas ambrosia occur on Victoria Series soils at a site in western Nueces County. Lila de los llanos, plains gumweed, and yellow-show are known from the general area and may occur on such soils (TNC, 1998).

A total of seven natural, semi-natural, and select non-native vegetation communities were delineated by TNC for NALF Cabaniss. The following two communities were found at the sites.

Blackbrush Shrubland: This community was found at the Skeet Range and consists of a mostly evergreen shrubland composed of species more commonly encountered in Tamaulipan thornscrub. It occupies the steep slopes along Oso Creek near the end of Runway 31, in the southeastern corner of the installation. An impenetrable thicket is formed here by shrubs such as blackbrush, narrowleaf elbowbush, coyotillo, coma, agarito, and Berlandier wolfberry, along with mesquite and pricklypear. Native shortgrasses such as purple threeawn, Texas grama, and buffalograss dominate the few openings (TNC, 1998).

Popinac Forest: This community was found at the former Incinerator Disposal Site. Popinac was introduced from tropical America and has since become naturalized (TNC 1998, Everitt and Drawe 1993). Several closed canopy stands of this medium-sized tree can be found along the southern perimeter road of the installation (TNC, 1998).

There are several state protected species that may be present at NALF Cabaniss. A discussion of the rare, threatened and endangered flora and fauna known historically from Nueces County that have the potential to be found on NALF Cabaniss is presented in the Natural Resources Management Plan (Navy, 2006). Also, the RI Appendix H, Database Search Records, presents a database search of the Texas

Parks & Wildlife Department Wildlife Habitat Assessment Program. The search of the Texas Natural Diversity Database was recently updated and the results were nearly identical to the one provided in Appendix H, Database Search Records. The area of the recent search was a little larger so a few additional species were identified (i.e., lila de los llanos, which is a plant in the lily family and the spot-tailed earless lizard). The updated search is presented in Appendix B of the Screening Level ERA. A map presenting the species observed in the Oso Creek Northwest United States Geological Survey (USGS) Quadrangle in relation to the sites is included in in Appendix B of the Screening Level ERA. The majority of the protected species are plants, but there are several wildlife species as well. In summary, the Texas tortoise (Gopherus berlandieri) was observed by Highway 286 at Oso Creek. However, it was last observed in 1961, so the probability of it occurring at the site is relatively low. Also, the Gulf saltmarsh snake (Nerodia clarkii) was observed between 1976 and 1980 over a mile northeast of the sites. This snake prefers brackish and saltwater estuaries, salt marshes, and tidal mud flats, so its presence at the sites is not likely. In addition, the Spot-tailed earless lizard (Holbrookia lacerata) was observed between 1962 and 1980 over 4 miles southeast of the sites at Oso Creek in the vicinity of Rodd Field. A 2009 survey of the area did not find this species. This lizard prefers sparsely vegetated areas. Other protected species such as the Maritime pocket gopher (Geomys personatus maritimus) and the Texas scarlet snake (Cemophora coccinea lineri) have been identified as occurring on NASCC property. However, Figure 2-5 in the Natural Resources Management Plan (Navy, 2006) indicates that soil conditions at Cabaniss do not support pocket gophers. It is not known where the scarlet snake was observed.

2.2 POTENTIAL EXPOSURE PATHWAYS

Terrestrial and aquatic receptors at the sites can be exposed to chemicals in soil and sediment, as discussed in more detail below. Some areas at the Incinerator Disposal Site provide habitat to both terrestrial and aquatic receptors, depending on the amount of water present, while the Skeet Range provides habitat only for terrestrial receptors. The majority of the Incinerator Disposal Site is dry throughout most of the year. However, during rainy periods parts of the site are wet and become habitat for aquatic receptors. In those areas, risks were evaluated for both terrestrial and aquatic receptors. As discussed above, although Oso Creek and the unnamed stormwater channel are adjacent to the Skeet Range, these areas are not considered complete exposure pathways because the SI indicated that they have not been impacted by site activities. Therefore, only risks to terrestrial receptors were evaluated at the Skeet Range.

2.2.1 Surface Soil

Surface soil for the purpose of this ERA is defined as soil from the ground surface to a depth of 1 foot below ground surface (bgs). At the Incinerator Disposal Site, approximately half of the surface soil samples were collected from 0 to 0.5 feet, while half were collected from 0 to 1 foot. At the Skeet Range, all of the surface soil samples were collected from 0 to 0.5 feet.

Several groups of terrestrial ecological receptors can be exposed to chemicals in surface soil. Invertebrates such as earthworms are exposed to chemicals while moving through soil, and invertebrates ingest soil particles while searching for food. Plants are exposed to chemicals via direct contact as chemicals are absorbed through the roots and may then translocate to different parts of the plants (e.g., leaves, seeds).

Small mammals may be exposed to chemicals in soil via several exposure routes. They may be exposed by direct contact as they search for food or burrow into the soil. Exposure of terrestrial wildlife to chemicals in the soil via dermal contact is unlikely to represent a major exposure pathway because fur, feathers, and chitinous exoskeletons are expected to minimize transfer of chemicals across dermal tissue. Small mammals can be exposed to chemicals in the soil via incidental ingestion of soil and through ingestion of plants and/or invertebrates that have accumulated chemicals from the soil.

Terrestrial vertebrates may be exposed to chemicals found in the air via inhalation. Although this pathway is possible, it is not a significant pathway and was not evaluated in this SERA.

Larger predatory species, such as the red fox and red-tailed hawk, can be exposed (indirectly) to chemicals in soil by ingesting prey items such as small mammals that have accumulated chemicals from the soil and food items.

2.2.2 Sediment

As noted above, ecological receptors can be exposed to chemicals in sediment at the Incinerator Disposal Site. There is little standing water at the either of the two sites during most of the year and surface water samples were not collected. Therefore, aquatic receptors are limited primarily to benthic invertebrates and amphibians during periods when water is present. Aquatic receptors such as sediment invertebrates are exposed to sediment contamination through direct contact and incidental ingestion of contaminated sediment. Terrestrial vertebrates, such as invertivorous wildlife (i.e., mammals and birds that consume invertebrates), also are exposed to contamination in sediment through the ingestion of aquatic prey items, by direct contact, and through incidental sediment ingestion.

2.3 ENDPOINTS

2.3.1 Assessment Endpoints

An assessment endpoint is an explicit expression of the environmental value that is to be protected (USEPA, 1997). The selection of these endpoints is based on the habitats present, the migration pathways of chemicals, and the routes that chemicals may take to enter receptors.

For this SERA, the assessment endpoints include the protection of the following groups of receptors from a reduction in growth, survival, and/or reproduction caused by site-related chemicals:

- Soil invertebrates
- Terrestrial vegetation
- Benthic invertebrates (only at the Incinerator Disposal Site)
- Terrestrial herbivorous birds and mammals
- Terrestrial invertivorous birds and mammals
- Wetland invertivorous birds and mammals (only at the Incinerator Disposal Site)

The following paragraphs discuss why the above assessment endpoints were selected for this SERA.

Soil Invertebrates: Soil invertebrates present at the sites aid in the formation of soil, as well as in the redistribution and decomposition of organic matter in the soil, and serve as a food source for higher trophic-level organisms. They can also accumulate some contaminants, which can then be transferred to the higher trophic-level organisms that consume invertebrates.

Terrestrial Vegetation: Terrestrial vegetation at the sites consists of grasses, shrubs, and trees. These plant types serve as a food source, provide shade and cover for many organisms, and help prevent soil erosion, among other important functions. They can also accumulate some contaminants, which can then be transferred to the higher trophic-level organisms that consume plants.

Benthic Invertebrates: Benthic invertebrates serve as a food source for higher trophic-level organisms (e.g., fish, amphibians, birds, mammals). They can also accumulate contaminants, which can be transferred to higher trophic-level organisms that consume invertebrates.

Terrestrial Herbivorous Birds and Mammals: Herbivorous birds and mammals (i.e., animals that consume only plant tissue) are present at the site. Their role in the community is essential because without them, higher trophic levels could not exist (Smith, 1966). They may be exposed to and accumulate contaminants that are present in the plants they consume and soil they incidentally ingest.

Terrestrial Invertivorous Birds and Mammals: Birds and mammals that consume primarily invertebrates are considered first-level carnivores. They serve as a food source for higher trophic level carnivores and may be exposed to and accumulate chemicals present in the food items they consume and soil they incidentally ingest.

Wetland Invertivorous Birds and Mammals: Birds that consume primarily invertebrates are considered first-level carnivores. They serve as a food source for higher trophic level carnivores and may be exposed to and accumulate chemicals present in the food items they consume and sediment they incidentally ingest

As indicated by the USEPA (1997), "…it is not practical or possible to directly evaluate risks to all of the individual components of the ecosystem at a site. Instead, assessment endpoints focus the risk assessment on particular components of the ecosystem that could be adversely affected by contaminants from the site." Therefore, the SERA focused on the endpoints that tend to yield the highest risks, which will account for endpoints that have lower risks.

Carnivorous birds and mammals generally have large home ranges. The Incinerator Disposal Site covers approximately 17 acres of land, while the Skeet Range is approximately 7 acres. When the sizes of the sites are compared to the home ranges of top carnivores, such as the red-tailed hawk (approximately 1,700 acres) and the red fox (approximately 1,800 acres), carnivores would receive only a very small portion of their diet from the sites and, therefore, are not included as receptors in the SERA. Threshold oral toxicity values for reptiles and amphibians are not available for most chemicals, so risks to reptiles and amphibians were not quantitatively evaluated. With the above factors in mind, amphibians, reptiles, and carnivores were not selected as assessment endpoints.

2.3.2 Measurement Endpoints

Measurement endpoints (also referred to as measures of effects) are estimates of biological impacts (i.e., survival, growth and/or reproduction) that are used to evaluate the assessment endpoints. The following measurement endpoints were used to evaluate the assessment endpoints in this SERA:

- Decreases in survival, growth, and/or reproduction of plants, terrestrial invertebrates, and benthic invertebrates were evaluated by comparing measured concentrations of chemicals in surface soil and sediment to screening values designed to be protective of ecological receptors.

- Decreases in survival, reproduction, and/or developmental effects of birds and mammals were evaluated by comparing the estimated ingested dose of contaminants in surface soil and sediment to no-observed-adverse-effects levels (NOAELs) and lowest-observed-adverse-effects levels (LOAELs) for surrogate wildlife species.

Many receptors in the soil/sediment environments at the sites are adequately described in general categories, such as soil/sediment invertebrates. This is due to the nature of the threshold values, effects values, or criteria typically used to characterize risk for such organisms. For vertebrate receptors, selection of a particular surrogate species is required so that intake through eating and drinking can be estimated. The availability of exposure parameters such as body mass, feeding rate, and drinking rate, and the potential for the species or a similar species to be present at the sites are primary factors in selecting surrogate species. The following surrogate receptor species were used for the food-chain modeling conducted as part of the SERA:

- White-footed mouse: terrestrial herbivorous mammal
- Mourning dove: terrestrial herbivorous bird
- Short-tailed shrew: terrestrial and wetland invertivorous mammal
- American robin: terrestrial invertivorous bird
- Spotted sandpiper: wetland invertivorous bird

Receptor profiles for each of the receptors are presented in Appendix B. Note that the short-tailed shrew is evaluated in the food chain model as both a terrestrial and wetland receptor.

2.4 CONCEPTUAL SITE MODEL

A CSM in SERA problem formulation is a written description of predicted relationships between ecological entities and the stressors to which they may be exposed (USEPA, 1998). The CSM consists of two primary components: predicted relationships among stressor, exposure, and assessment endpoint response, and a diagram that illustrates the relationships (USEPA, 1998). The current CSMs for the Incinerator Disposal Site and the Skeet Range are depicted on Figures 2-1 and 2-2, respectively.

In summary, at the Incinerator Disposal Site, contamination was released to the soil/sediment via several activities including incineration of small ordnance items and confiscated drug material and a sanitary landfill. Plants, soil invertebrates, and vertebrates are exposed to chemicals in the surface soil by direct contact and/or ingestion of soil and food items. Benthic invertebrates and wetland birds are exposed to contaminated sediment by direct contact and/or ingestion of sediment and other food items. At the Skeet Range, contamination was released to the soil via various shooting and skeet related activities. Plants, soil invertebrates, and vertebrates are exposed to chemicals in the surface soil by direct contact and/or ingestion of soil and food items.

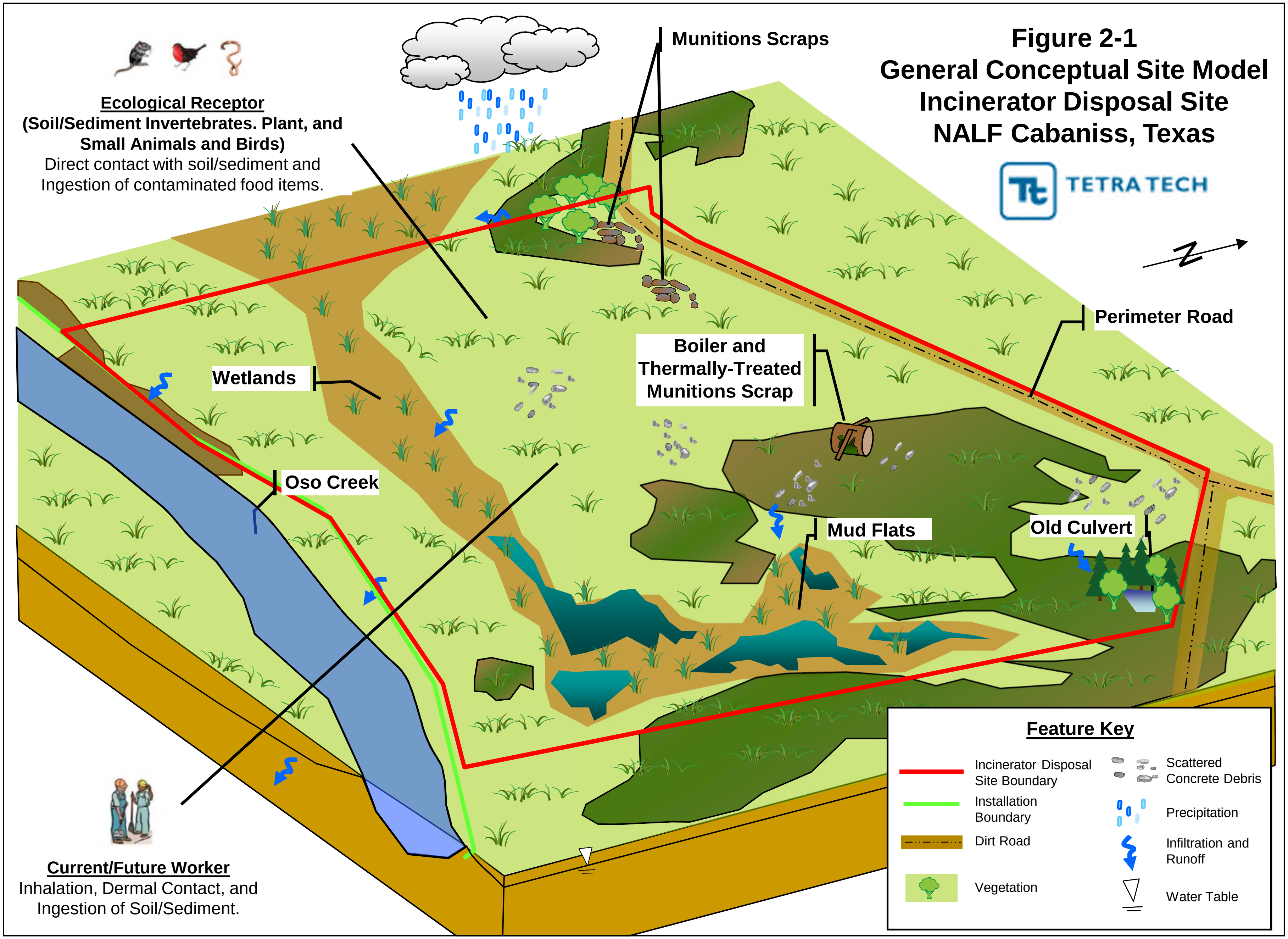


Figure 2-1
General Conceptual Site Model
Incinerator Disposal Site
NALF Cabaniss, Texas

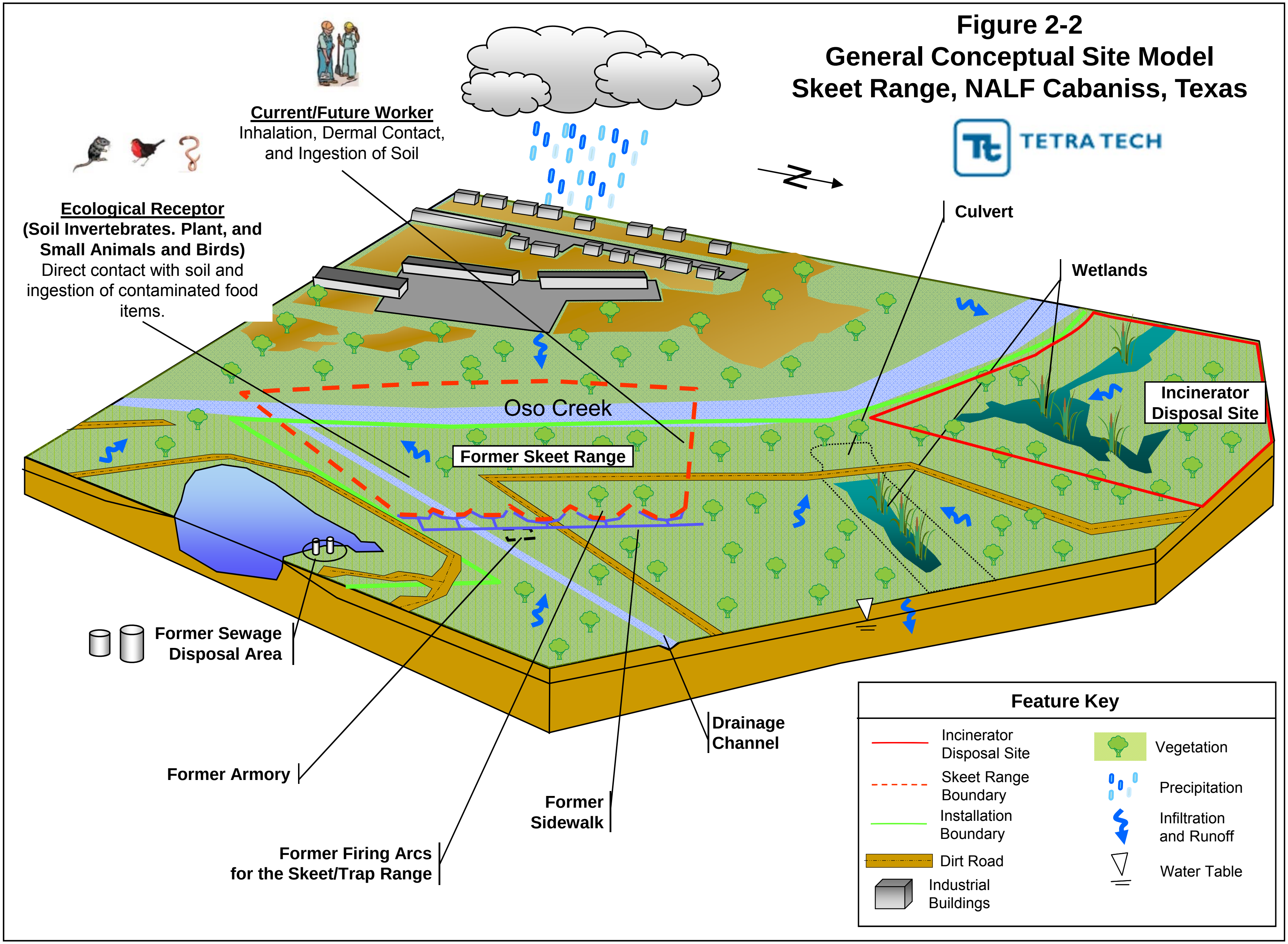


Figure 2-2
General Conceptual Site Model
Skeet Range, NALF Cabaniss, Texas
TETRA TECH
Current/Future Worker
Inhalation, Dermal Contact, and Ingestion of Soil
Ecological Receptor
(Soil Invertebrates. Plant, and Small Animals and Birds)
Direct contact with soil and ingestion of contaminated food items.
N
Culvert
Wetlands
Incinerator Disposal Site
Oso Creek
Former Skeet Range
Former Sewage Disposal Area
Former Armory
Drainage Channel
Former Sidewalk
Former Firing Arcs for the Skeet/Trap Range
Feature Key
Incinerator Disposal Site
Skeet Range Boundary
Installation Boundary
Dirt Road
Industrial Buildings
Vegetation
Precipitation
Infiltration and Runoff
Water Table

3.0 ECOLOGICAL EFFECTS EVALUATION

The ecological effects assessment is an investigation of the relationship between the exposure to a chemical and the potential for adverse effects resulting from exposure. In this step, screening levels for toxicity of the chemicals to ecological receptors were compiled.

3.1 TERRESTRIAL PLANTS AND INVERTEBRATES

Potential risks to terrestrial plants and invertebrates resulting from exposure to chemicals in surface soil were evaluated by comparing chemical concentrations to ecological screening levels. These toxicity values are expressed in units of concentration because terrestrial plants and invertebrates are in direct contact with the soil. The screening levels consist of the USEPA Ecological Soil Screening Levels (Eco SSLs) (USEPA, 2003a-b, 2005a-f, 2006, 2007a-f) and TCEQ (2006) screening levels. Finally, an undated document from Yoo et al., titled *Review of Perchlorate Ecotoxicity and Bioaccumulation Data to Support Evaluation of Ecological Risks*, was used to identify screening levels for perchlorate. Table 3-1 presents the screening levels, along with the source of each screening level.

3.2 BENTHIC INVERTEBRATES

Potential risks to benthic invertebrates resulting from exposure to chemicals in sediment were evaluated by comparing chemical concentrations to TCEQ (2006) sediment screening levels. These toxicity values are expressed in units of concentration because the benthic invertebrates are in direct contact with the sediment. Table 3-1 presents the screening levels, along with the source of each screening level.

3.3 MAMMALS AND BIRDS

Risk to wildlife from exposure to chemicals in surface soil and sediment were determined by estimating the Chronic Daily Intake (CDI) using food chain models and comparing the CDI to toxicity reference values (TRVs) representing acceptable daily doses in milligrams per kilogram (mg/kg)-day. The TRVs were developed from NOAELs and LOAELs obtained from wildlife studies.

The majority of the NOAELs and LOAELs were obtained from the USEPA Eco SSL documents and the Oak Ridge National Laboratory (ORNL) *Toxicological Benchmarks for Wildlife: 1996 Revision* (Sample et al., 1996) and were supplemented with other toxicity information when necessary (see Appendix B - Table 1). The chemical-specific Eco SSL documents provide both NOAELs and LOAELS for various studies, and overall NOAELs for specific chemicals, but the Eco SSL documents do not provide overall LOAELs. Therefore, the geometric mean of the chemical-specific growth and reproduction LOAELs from the chemical-specific Eco SSL documents were used as the LOAELs (see Appendix B - Table 2).

If a subchronic study was used to develop the NOAEL or LOAEL, the value was multiplied by a factor of 0.1 to account for uncertainty between subchronic and chronic effects to estimate chronic NOAEL or LOAEL. Also, LOAELs were multiplied by a factor of 0.1 to estimate a NOAEL if only a LOAEL was available.

Appendix B - Table 1 presents the NOAELs and LOAELs that were used to develop the TRVs and the test species used in the study. In most instances, the available literature-based toxicological data are based on animals other than the selected indicator species. In accordance with TNRCC (2001), the allometric scaling model based on Sample and Arenal (1999) was used to derive NOAELs and LOAELs for the wildlife species evaluated in the ERA from the NOAELs and LOAELs for the test species. The following equation was used to derive these values:

$$NOAELw = NOAELt(BW_t/BW_w)^{(1-b)}$$

where:

NOAELw = Toxicity value (mg/kg body weight-day) for selected avian or mammalian wildlife species.

NOAELt = Toxicity value for avian or mammalian test species "t" to extrapolate from (e.g., rat) mg/kg body weight-day

BW_t = Body weight of avian or mammalian test species (kg)

BW_w = Body weight of avian or mammalian wildlife species (kg)

b = Allometric scaling factor that is specific to either birds or mammals (unitless)

When a chemical of potential concern (COPC)-specific allometric scaling factor was available from Sample and Arenal (1999), it was used to extrapolate toxicity endpoints from known test species' endpoints to the receptor species. In the absence of COPC-specific allometric scaling factors, default allometric scaling factors of 1.2 for birds and 0.94 for mammals were used, as recommended by Sample and Arenal (1999) and the TCEQ (TNRCC, 2001). Appendix B - Table 3 presents the calculation of the TRVs and lists the body weights for the test species, when available. Many of the body weights in this table were obtained from the primary studies themselves. If the data from the studies were not available, default body weights for the species from other documents were used. Table 3-2 presents the exposure parameters, including body weights, for the receptor species that were used in the food chain model Many of the NOAELs and LOAELs were based on the geometric mean of NOAELs and LOAELS from several studies (primarily for the USEPA Eco SSLs). In those cases, species body weights associated with those values are not available so allometric scaling was not used for those chemicals.

TABLE 3-1

**ECOLOGICAL SCREENING LEVELS
INCINERATOR DISPOSAL SITE AND SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1**

	SOIL				SEDIMENT	
	Plant Screening Level		Invertebrate Screening Level		Invertebrate Screening Level	
Chemical	Value	Source	Value	Source	Value	Source
Miscellaneous Parameters (mg/kg)						
Perchlorate	1[1]	Yoo et al., Undated	1.3[2]	Yoo et al., Undated	NA	
Polycyclic Aromatic Hydrocarbons (mg/kg)						
LMW PAHs	NA[3]		29	Eco SSL (USEPA, 2007d)[4]	NA[5]	
HMW PAHs	NA		18	Eco SSL (USEPA, 2007d)[4]	NA[5]	
Inorganics (mg/kg)						
Aluminum	NA[6]	Eco SSL (USEPA, 2003a)	NA[6]	Eco SSL (USEPA, 2003a)	NA	
Antimony	5	TCEQ, 2006	78	Eco SSL (USEPA, 2005a)	2	TCEQ, 2006
Arsenic	18	Eco SSL (USEPA, 2005b)	60	TCEQ, 2006	9.79	TCEQ, 2006
Barium	500	TCEQ, 2006	330	Eco SSL (USEPA, 2005c)	NA	
Beryllium	10	TCEQ, 2006	40	TCEQ, 2006	NA	
Cadmium	32	Eco SSL (USEPA, 2005d)	140	Eco SSL (USEPA, 2005d)	0.99	TCEQ, 2006
Chromium	1	TCEQ, 2006	0.4	TCEQ, 2006	43.4	TCEQ, 2006
Cobalt	13	Eco SSL (USEPA, 2005e)	NA		50	TCEQ, 2006
Copper	70	Eco SSL (USEPA, 2007a)	80	Eco SSL (USEPA, 2007a)	31.6	TCEQ, 2006
Iron	NA[7]	Eco SSL (USEPA, 2003b)	NA		20000	TCEQ, 2006
Lead	120	Eco SSL (USEPA, 2005f)	1,700	Eco SSL (USEPA, 2005f)	35.8	TCEQ, 2006
Magnesium	NA		NA		NA	
Manganese	220	Eco SSL (USEPA, 2007b)	450	Eco SSL (USEPA, 2007b)	460	TCEQ, 2006
Mercury	0.3	TCEQ, 2006	0.1	TCEQ, 2006	0.18	TCEQ, 2006
Nickel	38	Eco SSL (USEPA, 2007c)	280	Eco SSL (USEPA, 2007c)	22.7	TCEQ, 2006
Potassium	NA		NA		NA	
Selenium	0.52	Eco SSL (USEPA, 2007e)	4.1	Eco SSL (USEPA, 2007e)	NA	
Silver	560	Eco SSL (USEPA, 2006)	NA		1	TCEQ, 2006
Sodium	NA		NA		NA	
Thallium	1	TCEQ, 2006	NA		NA	
Vanadium	2	TCEQ, 2006	NA		NA	
Zinc	160	Eco SSL (USEPA, 2007f)	120	Eco SSL (USEPA, 2007f)	121	TCEQ, 2006

NA - Not available/Not applicable
mg/kg - milligrams per kilogram
1 - Based on NOEC for germination of lettuce
2 - Based on an EC50 for cocoon production in sand (EC50 for cocoon production in artificial soil was 350 mg/kg)
3 - There is an ecological plant benchmark for acenaphthene of 20 mg/kg in TCEQ (2006).
4 - The USEPA Eco SSLs for PAHs for invertebrates are provided for LMW PAHs and HMW PAHs, but the levels are for individual PAHs within each class; the screening levels are not applied to "total" PAH vaues.
5 - Not applicable because PAHs were not analyzed for in the sediment samples.
6 - Aluminum is considered a COPC only when the soil pH is less than 5.5.
7 - Iron is not expected to be toxic to plants with a soil pH between 5 and 8.

Eco SSL - Ecological soil screening level
PAHs - Polycyclic Aromatic Hydrocarbons
LMW - Low Molecular Weight (acenapthylene, anthracene, fluoranthene, fluorene, phenanthrene, 1-methylnaphthalene,\ 2-methylnaphthalene, naphthalene)
HMW - High Molecular Weight (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-c,d)pyrene, pyrene)

TABLE 3-2

EXPOSURE PARAMETERS FOR FOOD CHAIN MODELS AND CALCULATION OF INGESTION RATES
INCINERATOR DISPOSAL SITE AND SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Species	Feeding Group	Body Weight (grams)(1)	Feeding Rate Calculation(2)			Soil/Sediment Ingestion Rate(3)		Food Ingestion Rate(4)	
			a	b	Dry Matter Intake (g/day)	Conservative (g/day)	Average (g/day)	Conservative (g/day)	Average (g/day)
White-footed mouse(5)	Herbivore	19	0.621	0.564	3.27	0.105	0.039	3.164	3.229
Mourning dove	Omnivore	150	0.648	0.651	16.91	2.351	1.032	14.562	15.881
Short-tailed shrew	Insectivore	15	0.621	0.564	2.86	0.086	0.026	2.774	2.835
Spotted sandpiper	Insectivore	40	0.648	0.651	7.15	1.288	1.288	5.866	5.866
American Robin	Insectivore	80	0.648	0.651	11.23	1.842	0.719	9.391	10.514

1 - Body weights from USEPA (1999), excluding the white-footed mouse
2 - Intake equation and parameters from Nagy (1987)
Dry matter intake = a*(grams body weight)^{b}
3 - Soil/sediment ingestion rate is calculated by multiplying the dry matter intake by the incidental soil/sediment ingestion rates listed below
4 - The food ingestion rates are calculated by subtracting the soil/sediment ingestion rate from the feeding rate.
5- Average of body weights for the deer mouse from USEPA (1993)

Incidental soil/sediment ingestion rates			
Species	Conservative	Average	Source
White-footed mouse	3.20%	1.20%	1,2
Mourning dove	13.90%	6.10%	1
Short-tailed Shrew	3%	0.90%	1
Spotted sandpiper	18.00%	18.00%	3, 4
American Robin	16.40%	6.40%	1,5

Conservative value is 90th percentile (except the sandpiper)
Average value is 50th percentile (except the sandpiper)
Only one value was available for the sandpiper

1 - USEPA (2007g)
2 - Based on the meadow vole.
3 - Beyer, et al., (1994)
4 - Based on the western sandpiper
5 - Based on the American woodcock

4.0 CHARACTERIZATION OF EXPOSURE

This portion of the SERA includes identification of contaminant concentration data used as the exposure point concentrations (EPCs) to represent ecological exposure in various media. Surface soil samples at the Incinerator Disposal Site consist of a mixture of multi-incremental (MI) and grab samples. Surface soil samples at the Skeet Range consist of grab samples. At the Incinerator Disposal Site, two of the locations where MI samples were collected were considered as soil/sediment because they were collected from the wetland area: ID-SS005 and ID-SS006. Also, at ID-SS005, a 5-part replicate sample was collected for quality assurance (QA) purposes. These replicate samples are designated by the addition of the letters A, B, C, D, and E to the end of the sample location name. These were evaluated as separate samples for consideration in this SERA.

Risks to plants and invertebrates were evaluated at each sample location because they are immobile or relatively immobile. Terrestrial plants and invertebrates are exposed to chemicals in surface soil, and/or sediment through ingestion and/or direct contact. Maximum chemical concentrations across all of the exposure units were used as the EPCs for the initial screening step.

Because wildlife species move and feed across the sites, and because the habitat is similar throughout the sites, the data from across the sites were combined into one wildlife exposure unit for terrestrial birds and mammals. As discussed previously, the total exposure dose of terrestrial wildlife to chemicals in soil, sediment, and associated food items such as plants and invertebrates were estimated using food chain models. Selection of a particular species is required so that intake through ingestion can be estimated. The availability of exposure parameters (e.g., body mass, and ingestion rates) were factors in selecting surrogate receptor species. The surrogate receptor species are provided in Section 2.3.2. These species were selected because they may be present at the sites, or have a similar exposure pathway to species that are present at the sites.

In accordance with TCEQ ERA Guidance, only bioaccumulative chemicals listed in Table 3-1 of TNRCC (2001) need to be carried through the food chain model. However, the document also states that other chemicals may be carried through the food chain model based on site-specific conditions. At the Skeet Range, High Molecular Weight (HMW) polycyclic aromatic hydrocarbons (PAHs) were detected at relatively high concentrations in the soil compared to USEPA Eco SSLs for mammals of 1.1 mg/kg (USEPA, 2007d). Therefore, the HMW PAHs at the Skeet Range were carried through the food chain model. Note that the Eco SSL for mammals for Low Molecular Weight (LMW) PAHs is 100 mg/kg.

The following equation was used to calculate the CDI for wildlife receptors:

$$CDI = \frac{[(Cf * If) + (Cs * Is)] * H}{BW}$$

Where:

CDI	=	Chronic daily intake [milligrams per kilogram (mg/kg)-day]
Cf	=	Chemical concentration in food – (see discussion below)
Cs	=	Chemical concentration in surface soil or sediment (mg/kg)
If	=	Food ingestion rate [kilograms per day (kg/day)]
Is	=	Incidental surface soil or sediment ingestion rate (kg/day)
H	=	Portion of food intake from the contaminated area (unitless)
BW	=	Body weight (kg)

Table 3-2 presents the exposure factors for the receptor species that were used in the food chain model. The food ingestion rates are on a dry weight basis and were obtained or calculated from Nagy (1987).

Chemical concentrations in food items of terrestrial invertivorous and herbivorous receptors were calculated using soil-to-invertebrate bioaccumulation factors (BAFs), soil-to-plant BAFs, and regression equations from the USEPA Eco SSL Guidance Document (USEPA, 2007g) or other published sources. Chemical concentrations in food items of wetland invertivorous receptors were calculated using sediment-to-invertebrate BAFs from the *Biota Sediment Accumulation Factors for Invertebrates: Review and Recommendations for the Oak Ridge Reservation* (ORNL, 1998) or other published sources. The sources of the BAFs are documented in Table 4-1. The following equation was used to calculate the chemical concentration in plants or invertebrates when BAFs were used:

$$Cf = Cs * BAF$$

Where:

Cf	=	Contaminant concentration in food (mg/kg)
Cs	=	Contaminant concentration in surface soil or sediment (mg/kg)
BAF	=	Biota-soil bioaccumulation factor (unitless)

The following input parameters were used in the dose equations under the conservative screening scenario:

- Maximum surface soil and sediment concentrations within each of the wildlife exposure units
- Conservative BAFs
- Conservative incidental soil/sediment ingestion rates

For refining the conservative exposure assumptions in Step 3a, the following input parameters were used for the food chain models:

- Average surface soil and sediment concentrations within each of the wildlife exposure units.
- Average BAFs (when available)
- Average incidental soil/sediment ingestion rates

TABLE 4-1

**BIOACCUMULATION FACTORS
INCINERATOR DISPOSAL SITE AND SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS
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Chemical	Plant Bioaccumulation Factors			Earthworm Bioaccumulation Factors			Sediment Invertebrate Bioaccumulation Factors		
	Conservative	Average	Source	Conservative	Average	Source	Conservative	Average	Source
PAHs									
Benzo(a)anthracene	EXP(0.5944*LN(C)-2.7078)		(1)	1.59	1.59	(1)	NA	NA	NA
Benzo(a)pyrene	EXP(0.975*LN(C)-2.0615)		(1)	1.33	1.33	(1)	NA	NA	NA
Benzo(b)fluoranthene	0.31	0.31	(1)	2.6	2.6	(1)	NA	NA	NA
Benzo(g,h,i)perylene	EXP(1.1829*LN(C)-0.9313)		(1)	2.94	2.94	(1)	NA	NA	NA
Benzo(k)fluoranthene	EXP(0.8595*LN(C)-2.1579)		(1)	2.6	2.6	(1)	NA	NA	NA
Chrysene	EXP(0.5944*LN(C)-2.7078)		(1)	2.29	2.29	(1)	NA	NA	NA
Dibenzo(a,h)anthracene	0.13	0.13	(1)	2.31	2.31	(1)	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.11	0.11	(1)	2.86	2.86	(1)	NA	NA	NA
Pyrene	0.72	0.72	(1)	1.75	1.75	(1)	NA	NA	NA
Metals									
Cadmium	EXP(0.546*LN(C)-0.475)		(1)	EXP(0.795*LN(C)+2.114)		(1)	7.99	0.6	(4)
Chromium	0.041	0.041	(1)	0.306	0.306	(1)	0.468	0.1	(4)
Copper	EXP(0.394*LN(C)+0.668)		(1)	0.515	0.515	(1)	5.25	1.556	(4)
Lead	EXP(0.561*LN(C)-1.328)		(1)	EXP(0.807*LN(C)-0.218)		(1)	0.607	0.071	(4)
Mercury	5	0.652	(2)	EXP(0.3369*LN(C)+0.0781)		(3)	2.868	1.136	(4)
Nickel	EXP(0.748*LN(C)-2.223)		(1)	1.059	1.059	(1)	2.32	0.486	(4)
Selenium	EXP(1.104*LN(C)-0.677)		(1)	EXP(0.733*LN(C)-0.075)		(1)	1	1	
Zinc	EXP(0.554*LN(C)+1.575)		(1)	EXP(0.328*LN(C)+4.449)		(1)	7.527	1.936	(4)

- A default value of 1.0 was assigned to chemicals with unknown BAFs. No footnotes are listed by these values.

NA - Not applicable; Not evaluated in wetland food chain model.

1 - USEPA (2007g). Several tissue concentration will be calculated using regression equations (where C is the soil concentration) from USEPA (2007g), Attachment 4-1, Tables 4a (for inorganics), Table 4B (for organics). Value for nickel is from 2005 version of the Eco SSL Guidance Document.

2 - ORNL (1998b) for all chemicals; conservative value is 90th percentile; average value is median value.

3 -Sample et al., (1998); tissue concentration will be calculated using regression equations (where C is the soil concentration).

4 -ORNL (1998a); conservative value is 90th percentile; average value is median value

5.0 RISK CHARACTERIZATION/SELECTION OF COPCs

The risk characterization is the final phase of a SERA, and compares exposure to ecological effects. It is at this phase that the likelihood of adverse effects occurring as a result of exposure to a stressor is evaluated. An ecological effects quotient (EEQ) approach was used to characterize the potential risk to ecological receptors by comparing exposure concentrations and doses to effects data. When EEQ values exceed 1.0, it is an indication that ecological receptors are potentially at risk; additional evaluation or data may be necessary to confirm with greater certainty whether ecological receptors are actually at risk, especially since most benchmarks are developed using conservative exposure assumptions and/or studies. The EEQ value should not be construed as being probabilistic; rather, it is a numerical indicator of the extent to which an EPC exceeds or is less than a benchmark.

The EEQs for surface soil receptors was calculated as follows:

$$EEQ = \frac{Css}{SSSL}$$

where:

EEQ	=	Ecological Effects Quotient (unitless)
Css	=	Chemical concentration in surface soil [micrograms per kilogram (µg/kg) or mg/kg]
SSSL	=	Surface soil screening level (µg/kg or mg/kg)

The EEQs for sediment invertebrates was calculated as follows:

$$EEQ = \frac{Csd}{SdSL}$$

where:

EEQ	=	Ecological Effects Quotient (unitless)
Csd	=	Chemical concentration in sediment (µg/kg or mg/kg)
SdSL	=	Sediment screening level (µg/kg or mg/kg)

The EEQs for terrestrial wildlife was calculated as follows:

$$EEQ = \frac{CDI}{TRV}$$

where:

EEQ	=	Ecological effects quotient (unitless)
CDI	=	Chronic daily intake dose (mg/kg-day)
TRV	=	Toxicity reference value (NOAEL or LOAEL) (mg/kg-day)

The final part of the screening evaluation is selection of COPCs. Chemicals that were not selected as COPCs are assumed to present negligible risk to ecological receptors and are not further evaluated in the SERA for those receptors. Chemicals that were initially selected as COPCs are evaluated further in Step 3a. Ecological COPCs were selected using the following procedures:

- Chemicals with EEQs greater than 1.0 (using screening values) were initially selected as COPCs for plants and invertebrates because they have a potential to cause risk to those receptors.

- Chemicals with EEQs greater than 1.0 based on the conservative food chain model using NOAELs were initially selected as COPCs for mammals and birds because they have a potential to cause risk to those receptors.

- Chemicals without screening values were initially selected as COPCs to be conservative.

- Chemicals that were detected at concentrations less than the Texas-specific background concentrations were not retained as COPCs in accordance with TCEQ guidance (TNRCC, 2001).

- Calcium, magnesium, potassium, and sodium were not retained as COPCs, because they are essential nutrients that can be tolerated by living systems even at high concentrations. No evidence indicates that these chemicals are related to site operations, and they are not considered hazardous chemicals.

6.0 STEP 3A REFINEMENT

Step 3a consists of a refinement of the conservative exposure assumptions and concentrations to evaluate the potential risks to ecological receptors (i.e., plants, invertebrates, and wildlife receptors). The objective of the Step 3a evaluation is to further refine the number of chemicals that are retained as COPCs in order to focus additional efforts (if necessary) on chemicals that are of significant ecological concern. The following describes the processes that were used to further evaluate chemicals initially selected as COPCs in soil and sediment.

For chemicals that are evaluated further in Step 3a, the following factors were evaluated, as appropriate, to determine if the risks are great enough to warrant additional evaluations. Note that all of these factors are not applicable for all chemicals and/or receptor groups.

- Magnitude of benchmark exceedance: Although the magnitude of the risks may not relate directly to the magnitude of a benchmark exceedance, the magnitude of the benchmark exceedance may be one item used in a lines-of-evidence approach to determine the need for further site evaluation. The greater the benchmark exceedance, the greater the probability and concern that an unacceptable risk exists.

- Frequency of chemical detection and spatial distribution: A chemical detected at a low frequency typically is of less concern than a chemical detected at a higher frequency if toxicity and concentrations and spatial areas represented by the data are similar. All else being equal, chemicals detected frequently were given greater consideration than those detected relatively infrequently. In addition, the spatial distribution of a chemical was evaluated to determine the area that a sample represents.

- Contaminant bioavailability: Many contaminants (especially inorganics) are present in the environment in forms that are typically not bioavailable, and the limited bioavailability was considered when evaluating the exposures of receptors to site contaminants. Contaminants with generally less bioavailability were considered to be less toxic than the more bioavailable contaminants, all other factors being equal.

- More Appropriate Benchmarks: More appropriate benchmarks were used to further evaluate risks to specific groups of ecological receptors (e.g., plants and invertebrates) because while screening levels are useful for initial screening, they might not be appropriate for evaluating all of the assessment endpoints.

7.0 SITE-SPECIFIC SERAs

This section presents the SERAs that were conducted at the Incinerator Disposal Site and Skeet Range following the general methodologies presented in the previous sections.

7.1 SERA FOR THE INCINERATOR DISPOSAL SITE

This section presents the SERA for the Incinerator Disposal Site.

7.1.1 Selection of Contaminants of Potential Concern

Tables 7-1 and 7-2 provide the results of the COPC selection for surface soil (for plants and soil invertebrates) and sediment (for sediment invertebrates), respectively, from the Incinerator Disposal Site. Tables 7-3 and 7-4 present the results of the conservative food chain models for surface soil and sediment, respectively. Table 7-5 presents the analytical results for each surface soil sample at the Incinerator Disposal Site for each chemical that was detected in at least one sample.

Twelve inorganics were selected as COPCs for terrestrial plants in surface soil because their maximum detected concentrations resulted in EEQs greater than 1.0. Two inorganics and 15 PAHs were selected as COPCs for terrestrial plants because screening levels were not available.

Nine inorganics were selected as COPCs for soil invertebrates in surface soil because their maximum detected concentrations resulted in EEQs greater than 1.0. Four inorganics were selected as COPCs for soil invertebrates because screening levels were not available.

One inorganic was selected as a COPC for sediment invertebrates in sediment because it was detected at a maximum concentration that resulted in an EEQ greater than 1.0. Three inorganics were selected as COPCs for sediment invertebrates because screening levels were not available.

The following summarizes the results of the food chain modeling for terrestrial and wetland receptors using maximum concentrations and conservative model parameters:

- Terrestrial herbivorous birds: Seven inorganics had EEQs greater than 1.0 in the food chain model and were selected as COPCs.
- Terrestrial herbivorous mammals: Seven inorganics had EEQs greater than 1.0 in the food chain model and were selected as COPCs.

- Terrestrial invertivorous birds: Eight inorganics had EEQs greater than 1.0 in the food chain model and were selected as COPCs.

- Terrestrial invertivorous mammals: Eight inorganics had EEQs greater than 1.0 in the food chain model and were selected as COPCs.

- Wetland invertivorous birds: One inorganic had an EEQ greater than 1.0 in the food chain model and was selected as a COPC.

- Wetland invertivorous mammals: Two inorganics had EEQs greater than 1.0 in the food chain model and were selected as COPCs.

7.1.2 Step 3a Evaluation

Chemicals initially selected as COPCs were re-evaluated as described in the methodology. In addition to the Texas-specific background concentrations that were used to select COPCs, samples were collected at the Incinerator Disposal Site from areas that did not appear to have been impacted by site activities. These are noted as background in the “Sample Type” field on Table 7-5. The maximum detected concentrations in these background samples also are presented on Tables 7-1 and 7-2.

7.1.2.1 Terrestrial Plants

Aluminum was initially selected as a COPC for terrestrial plants because the maximum concentration exceeded the background value and a screening value was not available. As presented by the USEPA (2003a), aluminum is a COPC only when soil pH is less than 5.5. Although pH data are not available, it is not likely that aluminum at the site is present in a highly bioavailable form that is impacting plants. While total aluminum concentrations were measured, only soluble aluminum may result in the toxicity to plants and invertebrates. This is the form of aluminum that is typically used in toxicity tests, which is not the same form typically found in the environment. Usually a large fraction of the soluble aluminum is found in the form of organic and fluoride complexes and these complexed forms of aluminum are much less toxic to plants than soluble Al3+ or Al-hydroxy cations (USEPA, 2003a). Finally, the majority of the aluminum concentrations at the sites are less than the Texas-specific background concentration of 30,000 mg/kg. In fact, samples from only three locations, ID-SS001, ID-SS005, and ID-SS006 had aluminum concentrations greater than 30,000 mg/kg so aluminum is not likely to be site-related. For these reasons, aluminum is eliminated as a COPC.

Iron was initially selected as a COPC for plants because a soil pH value was not available and the maximum concentration exceeded the background value. The Eco SSL for iron states that in well-aerated soils between pH 5 and 8, iron is not expected to be toxic to plants (USEPA 2003b). Although soil pH data are not available, it is not likely to be within this range given the heavy vegetation at the sites. Also, iron is typically not considered a very bioavailable metal in the environment. Finally, the majority of the iron concentrations at the sites and the average iron concentration across the sites are less than the Texas-specific background concentration of 15,000 mg/kg. For these reasons, iron is eliminated as a COPC.

An Eco SSL is not available for plants for PAHs; however, data presented on Table 3.1 in the Eco SSL document for PAHs shows that PAHs are typically not toxic to plants except at high soil concentrations with the lowest listed EC_{50} of 30 mg/kg from Mitchell et al. (1988). All concentrations of PAHs are less than this value. Also, using the Canadian Council of Ministers of the Environment (CCME) screening values (CCME, 2010) for anthracene (2.5 mg/kg), benzo(a)pyrene (20 mg/kg), and fluoranthene (50 mg/kg) as surrogates for PAHs, it does not appear that PAH concentrations in soil are likely to impact plants because all detected concentrations are significantly less than these benchmarks. Therefore, PAHs are not expected to impact plants at the sites and are eliminated as COPCs.

Arsenic, barium, cobalt, and nickel were selected as COPCs for plants because maximum concentrations exceeded screening values; however, concentrations of these chemicals infrequently exceeded the screening values in one to three samples out of 59 samples. Therefore, these chemicals are eliminated as COPCs because any impacts would be limited to a small area.

Antimony exceeded its screening value in 5 of 46 samples from sample locations SS04, SS04B, SS04D, SS07, and SS07B. Cadmium exceeded its screening value in 6 of 59 samples from sample locations SS01A, SS04, SS04B, SS04C, SS04D, and SS07. All of these detections were greater than their respective Texas-specific background concentrations and the site-specific background concentrations.

Chromium exceeded its screening value of 1 mg/kg in all samples, which is the ORNL value (Efroymson, et al., 1997a). There is significant uncertainty in this benchmark because it was based on hexavalent chromium being added to soil, which would be much more bioavailable than most chromium in the environment. In fact, the plant screening benchmark is much lower than the Texas-specific background concentration of 30 mg/kg. Therefore, a more appropriate benchmark is the Canadian Soil Quality Guideline (SQG) of 78 mg/kg, which is based on risks to plants and soil invertebrates (CCME, 1999). This benchmark was exceeded at only three sample locations (SS04C, SS04D, and SS07). A few locations had chromium concentrations in excess of the background concentration. Therefore, chromium is eliminated as a COPC because any impacts would be limited to a small area.

Copper exceeded its screening value of 70 mg/kg in 17 of 59 samples. Lead exceeded its screening value of 120 mg/kg in 12 of 59 samples. Selenium exceeded its screening value of 0.52 mg/kg in 45 of 59 samples, while zinc exceeded its screening value of 160 mg/kg in 19 of 59 samples. All of these screening levels were greater than their respective Texas-specific background concentrations and the site-specific background concentrations. Concentrations of manganese exceeded its screening value (220 mg/kg) in 49 of 59 samples. Several samples also exceeded the site-specific and Texas-specific background concentrations (340 mg/kg and 300 mg/kg, respectively) for manganese.

In summary, several metals exceeded their respective plant benchmarks and background concentrations in several samples. Figures 7-1 to 7-10 illustrate samples that exceed the Texas-specific background concentration and/or the plant or invertebrate benchmark (or multiple thereof) for select chemicals (antimony, barium, cadmium, chromium, copper, lead, manganese, nickel, selenium, and zinc). The locations with detections that are greater than background concentrations and the plant benchmarks are located in the center portion of the sites. These samples were collected during the SI from locations where munitions and other debris were observed, but the extent of contamination has not been determined in the vicinity of some samples with elevated concentrations. Because many of these samples are unbounded, the extent of contamination cannot be determined. The vegetation across the sites does not appear to be different than the vegetation in the surrounding areas, and no areas of stressed vegetation were noted during the site visit. This may be because plant benchmarks are by design, conservative values, so an exceedance of these benchmarks does not necessarily indicate that adverse impacts to plants are occurring. However, because there is uncertainty in this qualitative evaluation, metals cannot be eliminated as COPCs for plants at this time. Based on the number of exceedances of the plant benchmarks (and background concentrations), the metals of most potential concern to plants are antimony, cadmium, copper, lead, manganese, selenium, and zinc.

7.1.2.2 Soil Invertebrates

Aluminum and iron were eliminated as COPCs for soil invertebrates for reasons similar to those presented above.

Cobalt and silver were selected as COPCs for invertebrates because screening values were not available. Concentrations of cobalt exceeded the Texas-specific background concentration (7 mg/kg) in only one sample; there is no Texas-specific background concentration for silver. The maximum detected concentrations of cobalt (18.1 mg/kg) and silver (3.5 mg/kg) are much lower than the benchmarks of 1,000 mg/kg (for cobalt) and 50 mg/kg (for silver) based on microorganisms (Efroymson, et al., 1997b); no toxicity data were available for other soil invertebrates. Therefore, any potential impacts to soil invertebrates from these metals are unlikely so cobalt and silver are eliminated as COPCs.

Cadmium, lead, and mercury were selected as COPCs for invertebrates because maximum concentrations exceeded screening values; however, concentrations of these chemicals infrequently exceeded the screening values in one to three samples out of 59 samples. Figure 7-6 shows the locations with lead concentrations that exceed the invertebrate screening level. It can be seen from this figure that the few exceedances are bounded nearby by other samples with lower concentrations and represent a very small area. Also, the mercury screening level of 0.1 mg/kg was based on a study in which mercury chloride was added to soil. As noted in Allen (2002), metals from freshly salt-spiked soil are much more toxic than equivalent metal concentrations in field collected soil. The maximum detected mercury concentration was only 0.16 mg/kg, which just slightly exceeded the conservative screening level. Therefore, these chemicals are eliminated as COPCs because any impacts would be limited to a small area.

Chromium exceeded its screening value of 0.4 mg/kg in all samples. Chromium also exceeded Texas-specific background concentration in several samples. As discussed for plants, a more appropriate benchmark is the Canadian SQG of 78 mg/kg. Chromium exceeded the SQG at the same three locations where lead exceeded its screening level (SS04C, SS04D, and SS07) (See Figure 7-4). Because concentrations of chromium in adjacent samples are less than screening values, impacts to soil invertebrates are expected to be minor and chromium is eliminated as a COPC.

Barium exceeded its screening value of 330 mg/kg in 13 of 59 samples. Copper exceeded its screening value of 80 mg/kg in 15 of 59 samples. Manganese exceeded its screening value of 450 mg/kg in 6 of 59 samples. Selenium exceeded its screening value of 4.1 mg/kg in 12 of 59 samples. Zinc exceeded its screening value of 120 mg/kg in 24 of 59 samples. Barium, copper, manganese, selenium, and zinc were detected at elevated concentrations across the site so it is possible that these chemicals are site-related.

In summary, several metals exceeded their respective invertebrate benchmarks and background concentrations in several samples (see Figures 7-1 to 7-10). Similar to what was discussed for plants, the locations with detections that are greater than background concentrations and the invertebrate benchmarks are located in the center portion of the site but the extent of contamination has not been determined in the vicinity of some samples with elevated concentrations. Potential impacts to soil invertebrates cannot be easily be determined visually like it can for plants, so it is not known whether invertebrates are being impacted at the site. If impacts to the invertebrates were confined to small areas, then overall impacts at the site would probably be acceptable. However, because the areas with elevated metals levels are not bounded, this cannot be determined. Therefore, because there is uncertainty in this qualitative evaluation, metals cannot be eliminated as COPCs for invertebrates at this time. Based on the number of exceedances of the invertebrate benchmarks (and background concentrations), the metals of most potential concern to invertebrates are barium, copper, manganese, selenium, and zinc.

7.1.2.3 Sediment Invertebrates

Aluminum, barium, and selenium were initially selected as COPCs because their maximum concentrations exceeded the background values and screening values were not available.

Aluminum and barium concentrations exceeded the following sediment benchmarks listed in Buchman (2008): 25,500 mg/kg for aluminum and 130 mg/kg for barium. Concentrations of aluminum and barium were also slightly greater (by a factor of approximately 1.5) than Texas-specific background concentration in all samples. Aluminum is not typically considered a metal of concern in the environment because it is unlikely to be in bioavailable form at the site. Also, the water in this area is generally intermittent so there is not likely to be a significant benthic community at the site. For these reasons, and because there is uncertainty in whether they are even site related, aluminum and barium are eliminated as COPCs for potential risks to sediment invertebrates.

Although selenium exceeded Texas-specific background concentration (0.3 mg/kg) in 3 of 7 samples, all selenium concentrations were less than the available sediment benchmark of 1 mg/kg listed in Buchman (2008). Therefore, potential impacts to sediment invertebrates from selenium are expected to be minimal so selenium is eliminated as a COPC for potential risks to sediment invertebrates.

The maximum detected concentration of iron (22,400 mg/kg) only slightly exceeded its screening value (20,000 mg/kg), which is the lowest effect level (LEL) from Persaud, et al. (1993). All iron concentrations were well below the severe effect level (SEL) of 40,000 mg/kg. Also, similar to aluminum and barium, iron is not typically considered a metal of concern in the environment because it is not likely to be in bioavailable form. For these reasons, potential impacts to sediment invertebrates from iron are expected to be minimal and iron is eliminated as a COPC for sediment invertebrates.

7.1.2.4 Terrestrial and Wetland Wildlife

Tables 7-6 and 7-7 present the result of the less conservative food chain model for surface soil and sediment, respectively. These tables list only chemicals that had EEQs greater than 1.0 in the conservative food chain model. A discussion of the risks to mammal and birds is presented below.

- Terrestrial herbivorous birds: The EEQ for lead (2.7) for the dove was greater than 1.0 using the NOAEL as the TRV. The LOAEL EEQ was less than 1.0. Impacts to herbivorous birds are expected to be minimal; therefore, lead is eliminated as a COPC.

- Terrestrial herbivorous mammals: The EEQ for selenium (1.7) for the mouse was greater than 1.0 using the NOAEL as the TRV. The LOAEL EEQ for selenium was less than 1.0. Therefore, impacts to herbivorous mammals are expected to be minimal and selenium is eliminated as a COPC.

- Terrestrial invertivorous birds: The EEQs for cadmium, copper, lead, mercury, selenium, and zinc were greater than 1.0 using the NOAEL as the TRV. The LOAEL EEQs for copper, lead, selenium, and zinc were less than 1.0. Therefore, impacts to invertivorous birds from these chemicals are expected to be minimal and they are eliminated as COPCs. The LOAEL EEQs for cadmium and mercury were slightly greater than 1.0 with values of 1.4 and 1.2, respectively. The risks from mercury are related to the extremely low TRVs used in the food chain model, as opposed to elevated concentrations of mercury at the site. In fact, the average mercury concentration used in the food chain model, 0.034 mg/kg, is lower than the Texas-specific background concentration of 0.04 mg/kg. Therefore, risks from mercury are likely similar to background risks. There were several elevated cadmium detections found in the site samples, but all of them were in the SI samples, which are located in the central portion of the site. As discussed previously, the extent of contamination in this area has not been determined, so the actual exposure of cadmium to birds cannot be determined. For this reason, cadmium was retained as a COPC for potential risks to terrestrial invertivorous birds.

- Terrestrial invertivorous mammals: The EEQs for cadmium, copper, lead, nickel, selenium, and zinc were greater than 1.0 using the NOAEL as the TRV. The LOAEL EEQs were less than 1.0 for copper, lead, nickel, selenium, and zinc. Therefore, impacts to invertivorous mammals are expected to be minimal and these chemicals are eliminated as COPCs. The LOAEL EEQ for cadmium (1.8) was slightly greater than 1.0. Therefore, cadmium was retained as a COPC for potential risks to terrestrial invertivorous mammals.

- Wetland invertivorous birds: The EEQ for copper (2.0) was greater than 1.0 using the NOAEL as the TRV. The LOAEL EEQ for copper was less than 1.0; therefore, impacts to wetland invertivorous birds are expected to be minimal and copper is eliminated as a COPC.

- Wetland invertivorous mammals: No EEQs were greater than 1.0 for wetland insectivorous mammals so risks to these receptors are not expected.

In summary, with the exception of cadmium and mercury, all of the EEQs based on the LOAEL were less than 1.0, and most of the EEQs based on the NOAEL were less than 3, so most metals were eliminated as COPCs based on risks to mammals and birds. There is a significant amount of uncertainty in whether small mammals and birds are being impacted by cadmium at the site because the LOAEL EEQ just slightly exceeded 1.0 with a value of 1.8. Risks from mercury, though, are similar to background risks.

As was observed for the other metals, the greatest concentrations of cadmium were detected in the Site Investigation samples, which are located at a few locations in the center of the site. Although the extent of contamination has not been determined in this area, if it is determined that the samples represent relatively small areas, then risks to small mammals and birds from cadmium will be less likely.

7.2 SERA FOR THE SKEET RANGE

This section presents the SERA for the Skeet Range

7.2.1 Selection of Contaminants of Potential Concern

Table 7-8 provides the results of the COPC selection for surface soil (for plants and soil invertebrates) from the Skeet Range and Table 7-9 presents the results of the screening food chain model for surface soil. Table 7-10 presents the analytical results for each surface soil sample at the Skeet Range for each chemical that was detected in at least one sample. Figure 7-11 illustrates samples that exceed the plant or invertebrate benchmark (or multiple thereof) for lead.

Two inorganics was selected as COPCs for terrestrial plants in surface soil because they were detected at maximum concentrations that resulted in EEQs greater than 1.0. Eighteen PAHs were selected as COPCs for terrestrial plants because screening levels were not available.

Ten PAHs were selected as COPCs for soil invertebrates in surface soil because they were detected at maximum concentrations that resulted in EEQs greater than 1.0. One inorganic was selected as a COPC for soil invertebrates because a screening level was not available.

The following summarizes the results of the food chain modeling for terrestrial receptors using maximum concentrations and conservative model input parameters:

- Herbivorous birds: One inorganic and seven HMW PAHs had EEQs greater than 1.0 in the food chain model and were selected as COPCs.

- Herbivorous mammals: Two inorganics and seven HMW PAHs had EEQs greater than 1.0 in the food chain model and were selected as COPCs.

- Invertivorous birds: Two inorganics and eight HMW PAHs had EEQs greater than 1.0 in the food chain model and were selected as COPCs.

- Invertivorous mammals: Two inorganics and nine HMW PAHs had EEQs greater than 1.0 in the food chain model and were selected as COPCs.

7.2.2 Step 3a Evaluation

Chemicals initially selected as COPCs were re-evaluated as described in the methodology.

7.2.2.1 Terrestrial Plants

An Eco SSL is not available for plants for PAHs; however, data presented on Table 3.1 in the Eco SSL document for PAHs shows that PAHs are typically not toxic to plants except at high soil concentrations with the lowest listed EC_{50} of 30 mg/kg from Mitchell et al. (1988). Several PAHs have maximum concentrations greater than this value; however, average concentrations of all PAHs are well below this value. Concentrations of some PAHs in two grids exceeded 30 mg/kg and the available Canadian SQGs for anthracene (2.5 mg/kg), benzo(a)pyrene (20 mg/kg), and fluoranthene (50 mg/kg) (CCME, 2010) (SR-SS05 and SR-SS08) (see Table 2 in Attachment 2). No samples exceeded the ORNL plant benchmark for acenaphthene of 20 mg/kg (Efroymson et al., 1997a). Because the source of the PAHs is the clay targets, it is not likely that the PAHs will be very bioavailable to plants at the site since the PAHs will be bound in the clay This is supported by the fact that the vegetation at the site does not appear to be different than the vegetation in the surrounding areas. Therefore, it does not appear that plants are being significantly impacted but even if they were, the impacts would be limited to a small area. For these reasons, PAHs are eliminated as COPCs for plants.

Lead and selenium were selected as COPCs for plants because maximum concentrations exceeded screening values. Lead exceeded its screening value (120 mg/kg) in only one of 15 samples with a concentration of 476 mg/kg. Therefore, any impacts from exposure to lead would be limited to a small area. Selenium, which was analyzed in only one sample, exceeded its screening value (0.52 mg/kg) in that sample with a concentration of 2.2 mg/kg. Therefore, the size of area with potential impacts to plants from exposure to selenium cannot be determined. However, as discussed above, it does not appear that plants are being significantly impacted at the site so lead and selenium are eliminated as COPCs for plants.

7.2.2.2 Soil Invertebrates

Several PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene) were selected as COPCs for invertebrates because the maximum concentration exceeded screening values. The PAHs selected as COPCs, excluding benzo(b)fluoranthene, only exceeded screening values in one to two samples of 59 samples. Benzo(b)fluoranthene exceeded its screening value in 6 of 59 samples; however, concentrations in four samples only slightly exceeded the screening value of 18 mg/kg with concentrations ranging from 19 to 21 mg/kg. Therefore, any potential impacts from exposure to PAHs would be limited to a small area. As indicated above, the PAHs are not likely to be very bioavailable. For those reasons, potential impacts to soil invertebrates are expected to be low and PAHs are eliminated as COPCs for soil invertebrates.

Silver was selected as a COPC for invertebrates because a screening value was not available. Silver was analyzed in only one sample. The concentration of silver (0.21 mg/kg) was less than the benchmark of 50 mg/kg based on toxicity to soil microorganisms (Efroymson, et al., 1997b). Also, although a Texas-specific background concentration for silver was not available, the concentration is lower than the silver background concentrations for the eastern and western United States as cited in the Eco SSL document for silver (USEPA, 2006). Therefore, silver does not appear to be site-related and potential impacts to soil invertebrates from exposure to silver are not expected. For those reasons, silver is eliminated as a COPC for soil invertebrates.

7.2.2.3 Terrestrial Wildlife

Table 7-11 presents the results of the less conservative food chain model for surface soil. These tables list the chemicals that had EEQs greater than 1.0 in the conservative food chain model. A discussion of the risks to mammal and birds is presented below.

- Herbivorous birds: No EEQs were greater than 1.0 so risks to these receptors are not expected.

- Herbivorous mammals: The EEQs for selenium (1.3) and pyrene (1.3) were slightly greater than 1.0 using the NOAEL as the TRV. The LOAEL EEQs were less than 1.0. Therefore, impacts to herbivorous mammals are expected to be minimal and selenium and pyrene are eliminated as COPCs.

- Invertivorous birds: The EEQs for lead (4.5), selenium (1.1) and benzo(b)fluoranthene (1.6) were greater than one using the NOAEL as the TRV. The LOAEL EEQs were less than 1.0. Therefore, impacts to invertivorous birds are expected to be minimal and these chemicals are eliminated as COPCs for birds.

- Invertivorous mammals: The EEQs for selenium (1.5), benzo(a)anthracene (2.3), benzo(a)pyrene (2.5), benzo(b)fluoranthene (7.7), benzo(g,h,i)perylene (3.2), chrysene (3.7), indeno(1,2,3-cd)pyrene (3.2), and pyrene (3.5) were greater than one using the NOAEL as the TRV. The LOAEL EEQs were less than 1.0. It is likely that the bioavailability of the PAHs are overestimated using the BAFs from the Eco SSL document because the PAHs will be bound up in the clay targets. Because the EEQs are relatively low using the very conservative BAFs, impacts to invertivorous mammals are expected to be minimal. Therefore, selenium and PAHs are eliminated as COPCs for mammals and birds.

TABLE 7-1

SELECTION OF COPCS FOR PLANTS AND INVERTEBRATES
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1

Parameter	Frequency of Detection	Minimum Detection	Maximum Detection	Location of Maximum Detection	Average of Positive Results	Overall Average	Texas-Specific Background Concentration	Site-Specific Background Concentration[1]	Plant Screening Level[2]: Screening Level	Plant Screening Level[2]: Maximum EEQ[3]	Plant Screening Level[2]: Number of Screening Level Exceedences	Invertebrate Screening Level[2]: Screening Level	Invertebrate Screening Level[2]: Maximum EEQ[3]	Invertebrate Screening Level[2]: Number of Screening Level Exceedences	Deletion or Selection of COPCs for Invertebrates/Plants[4]: COPC (yes/no)?	Deletion or Selection of COPCs for Invertebrates/Plants[4]: Rationale	Further Evaluated in Terrestrial Food Chain Modeling[5]: Evaluated (yes/no)?	Further Evaluated in Terrestrial Food Chain Modeling[5]: Rationale
Inorganics (mg/kg)																		
ALUMINUM	59/59	2810 H	47500	ID-SS005A	15000	15000	30000	12700	NA	NA	NA	NA	NA	NA	Yes	NSL	No	NONBIO
ANTIMONY	19/46	0.06 J	37 J	ID-SS07	4.5	2.0	1	NA	5	7.4	5	78	0.47	0	Yes	ASL	No	NONBIO
ARSENIC	59/59	1.7 L	20	ID-SS07	4.8	4.8	5.9	4.6	18	1.1	2	60	0.33	0	Yes	ASL	No	NONBIO
BARIUM	59/59	41.4	834	ID-SS07B	220	220	300	177	500	1.7	3	330	2.5	13	Yes	ASL	No	NONBIO
BERYLLIUM	59/59	0.13 L	1.4	ID-SS005C; ID-SS005A; ID-SS005E; ID-SS005B; ID-SS005; ID-SS005D	0.6	0.6	1.5	0.77	10	0.14	0	40	0.035	0	No	BKG	No	BKG
CADMIUM	55/59	0.12	250	ID-SS04D	14.3	13.4	NA	0.88	32	7.8	6	140	1.8	1	Yes	ASL	Yes	DET > BKG
CALCIUM	44/44	5480 J	76100	ID-SS04D	31200	31200	NA	29800	NA	NA	NA	NA	NA	NA	No	NUT	No	NUT
CHROMIUM	59/59	3.9 L	249	ID-SS04D	23.1	23.1	30	9.2	1	249	59	0.4	623	59	Yes	ASL	Yes	DET > BKG
COBALT	59/59	1.1 L	18.1	ID-SS07B	4.1	4.1	7	4.5	13	1.4	1	NA	NA	NA	Yes	ASL, NSL	No	NONBIO
COPPER	59/59	7	1570	ID-SS07	134	134	15	14.9	70	22.4	17	80	19.6	15	Yes	ASL	Yes	DET > BKG
IRON	59/59	2220 H	77600	ID-SS04D	14600	14600	15000	7680	NA	NA	NA	NA	NA	NA	Yes	NSL	No	NONBIO
LEAD	59/59	11.1 L	4570 L	ID-SS04D	287	287	15	91.9	120	38.1	12	1700	2.7	3	Yes	ASL	Yes	DET > BKG
MAGNESIUM	59/59	1070 H	11300	ID-SS005A	4300	4300	NA	4010	NA	NA	NA	NA	NA	NA	No	NUT	No	NUT
MANGANESE	59/59	96.6	1630	ID-SS04	357	357	300	340	220	7.4	49	450	3.6	6	Yes	ASL	No	NONBIO
MERCURY	54/59	0.0061	0.16	ID-SS07C	0.036	0.034	0.04	0.036	0.3	0.53	0	0.1	1.6	2	Yes	ASL	Yes	DET > BKG
NICKEL	59/59	2.2 L	121	ID-SS04D	11.9	11.9	10	7.4	38	3.2	1	280	0.43	0	Yes	ASL	Yes	DET > BKG
POTASSIUM	59/59	739 H	9070	ID-SS005E	3540	3540	NA	3990	NA	NA	NA	NA	NA	NA	No	NUT	No	NUT
SELENIUM	48/59	0.24 J	40.4	ID-SS04D	4.4	3.6	0.3	4	0.52	77.7	45	4.1	9.9	12	Yes	ASL	Yes	DET > BKG
SILVER	47/59	0.05 J	3.5 L	ID-SS04	0.76	0.62	NA	0.62	560	0.0063	0	NA	NA	NA	Yes	NSL	No	NONBIO
SODIUM	59/59	31.8 L	9870	ID-SS005D	1210	1210	NA	168	NA	NA	NA	NA	NA	NA	No	NUT	No	NUT
THALLIUM	2/59	0.24 J	0.25 J	ID-SS005A	0.25	0.27	0.7	NA	1	0.25	0	NA	NA	NA	No	BKG	No	BKG
VANADIUM	59/59	4.6 L	43	ID-SS005A	17.3	17.3	50	19.5	2	21.5	59	NA	NA	NA	No	BKG	No	BKG
ZINC	59/59	40.9	7230	ID-SS07	602	602	30	96.2	160	45.2	19	120	60.3	24	Yes	ASL	Yes	DET > BKG
Miscellaneous Parameters (mg/kg)																		
PERCHLORATE	16/23	0.000733 J	0.0035	ID-SS12	0.0014	0.0011	NA	NA	1	0.0035	0	1	0.0035	0	No	BSL	No	NONBIO
Polycyclic Aromatic Hydrocarbons (mg/kg)																		
ACENAPHTHENE	4/15	0.0245 J	0.0569	ID-SS07C	0.031	0.014	NA	0.0277	NA	NA	NA	29	0.0020	0	Yes	NSL	No	NONBIO
ACENAPHTHYLENE	2/15	0.0232 J	0.0605	ID-SS07D	0.038	0.011	NA	0.0232	NA	NA	NA	29	0.0021	0	Yes	NSL	No	NONBIO
ANTHRACENE	8/15	0.0112 J	0.114	ID-SS07C	0.041	0.024	NA	0.0512	NA	NA	NA	29	0.0039	0	Yes	NSL	No	NONBIO
BENZO(A)ANTHRACENE	10/15	0.0199 J	0.219	ID-SS07C	0.1	0.069	NA	0.126	NA	NA	NA	18	0.012	0	Yes	NSL	No	NONBIO
BENZO(A)PYRENE	12/15	0.0129 J	0.28	ID-SS07D	0.13	0.1	NA	0.236	NA	NA	NA	18	0.016	0	Yes	NSL	No	NONBIO
BENZO(B)FLUORANTHENE	14/15	0.0226 J	0.66	ID-SS07D	0.2	0.19	NA	0.241	NA	NA	NA	18	0.037	0	Yes	NSL	No	NONBIO
BENZO(G,H,I)PERYLENE	7/15	0.0514 J	1.16	ID-SS07B	0.34	0.16	NA	0.188	NA	NA	NA	18	0.064	0	Yes	NSL	No	NONBIO
BENZO(K)FLUORANTHENE	4/15	0.021 J	0.17 J	ID-BG-SS09	0.073	0.024	NA	0.17	NA	NA	NA	18	0.0094	0	Yes	NSL	No	NONBIO
CHRYSENE	14/15	0.0144 J	0.251	ID-SS07D	0.1	0.095	NA	0.15	NA	NA	NA	18	0.014	0	Yes	NSL	No	NONBIO
FLUORANTHENE	15/15	0.0125 J	0.508	ID-SS07C	0.14	0.14	NA	0.22	NA	NA	NA	29	0.018	0	Yes	NSL	No	NONBIO
FLUORENE	5/15	0.0135 J	0.0557	ID-SS07C	0.026	0.013	NA	0.0307	NA	NA	NA	29	0.0019	0	Yes	NSL	No	NONBIO
INDENO(1,2,3-CD)PYRENE	7/15	0.087 J	0.269	ID-SS07D	0.19	0.09	NA	0.218	NA	NA	NA	18	0.015	0	Yes	NSL	No	NONBIO
NAPHTHALENE	3/15	0.0208 J	0.0381 J	ID-SS07C	0.024	0.0099	NA	0.0208	NA	NA	NA	29	0.0013	0	Yes	NSL	No	NONBIO
PHENANTHRENE	9/15	0.0129 J	0.415	ID-SS07C	0.13	0.078	NA	0.0903	NA	NA	NA	29	0.014	0	Yes	NSL	No	NONBIO
PYRENE	14/15	0.0146 J	0.403	ID-SS07C	0.13	0.12	NA	0.219	NA	NA	NA	18	0.022	0	Yes	NSL	No	NONBIO

1 - Maximum detected concentration. Not used to select COPCs.
2 - Sources of the plant and Invertebrate screening levels are presented on Table 3-1. Values are shaded in these columns if the maximum detected concentration exceeds the screening level or the chemical does not have a screening level (unless the chemical is an essential nutrient).
3 - Maximum Ecological Effects Quotient (EEQ) is calculated by dividing the maximum detected concentration by the screening level. EEQ is unitless.
4 - Chemicals are shaded in these columns if they are initially selected as COPCs for plants and/or invertebrates.
5 - Chemicals are shaded in this column if they are retained for food chain modeling to evaluate risks to mammals and birds. The food chain modeling screening results are presented in Table 7-3.
mg/kg - milligrams per kilogram

J - estimated
L - biased low
H - biased high

COPC Selection Rationale:
ASL - Above Screening Level
BSL - Below Screening Level
BKG - Below background
DET > BKG - Above background (or there is no background concentration)
NSL - No Screening Level
NONBIO = Non-bioaccumulative chemical
NUT - Essential Nutrient

TABLE 7-2

SELECTION OF COPCS FOR SEDIMENT INVERTEBRATES
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1

Parameter	Frequency of Detection	Minimum Detection	Maximum Detection	Location of Maximum Detection	Average of Positive Results	Overall Average	Texas-Specific Background Concentration	Site-Specific Background Concentration(1)	Sediment Invertebrate Screening Level(2)			Deletion or Selection of COPCs for Sediment Invertebrates(4)		Further Evaluated in Terrestrial Food Chain Modeling(5)	
									Screening Level	Maximum EEQ(3)	Number of Screening Level Exceedences	COPC (yes/no)?	Rationale	Evaluated (yes/no)?	Rationale
Inorganics (mg/kg)															
ALUMINUM	7/7	41600	47500	ID-SS005A	44900	44900	30000	12700	NA	NA	NA	Yes	NSL	No	NONBIO
ANTIMONY	5/7	0.09 J	0.3 J	ID-SS005D	0.22	0.17	1	NA	2	0.15	0	No	BKG	No	BKG
ARSENIC	7/7	5	6	ID-SS005A	5.6	5.6	5.9	4.6	9.79	0.61	0	No	BSL	No	NONBIO
BARIUM	7/7	417	450	ID-SS005E	431	431	300	177	NA	NA	NA	Yes	NSL	No	NONBIO
BERYLLIUM	7/7	1.3	1.4	ID-SS005; ID-SS005A;ID-SS005B; ID-SS005C; ID-SS005D; ID-SS005E	1.4	1.4	1.5	0.77	NA	NA	NA	No	BKG	No	BKG
CADMIUM	4/7	0.21 J	0.52 J	ID-SS005	0.36	0.21	NA	0.88	0.99	0.53	0	No	BSL	Yes	DET > BKG
CHROMIUM	7/7	25.8	31.5	ID-SS005A; ID-SS005B	29.1	29.1	30	9.2	43.4	0.73	0	No	BSL	No	NONBIO
COBALT	7/7	6	6.6	ID-SS005A; ID-SS005B	6.3	6.3	7	4.5	50	0.13	0	No	BKG	No	BKG
COPPER	7/7	14.2	16.2	ID-SS005	15.3	15.3	15	14.9	31.6	0.51	0	No	BSL	Yes	DET > BKG
IRON	7/7	20000	22400	ID-SS005E	21200	21200	15000	7680	20000	1.1	6	Yes	ASL	No	NONBIO
LEAD	7/7	16.3	19.1	ID-SS005B	17.9	17.9	15	91.9	35.8	0.53	0	No	BSL	No	NONBIO
MAGNESIUM	7/7	10400	11300	ID-SS005A	10900	10900	NA	4010	NA	NA	NA	No	NUT	No	NUT
MANGANESE	7/7	320	391	ID-SS005A	358	358	300	340	460	0.85	0	No	BSL	No	NONBIO
MERCURY	7/7	0.02 J	0.03 J	ID-SS006	0.021	0.021	0.04	0.036	0.18	0.17	0	No	BKG	No	BKG
NICKEL	7/7	14.5	16.1	ID-SS005B	15.0	15.0	10	7.4	22.7	0.71	0	No	BSL	Yes	DET > BKG
POTASSIUM	7/7	8260	9070	ID-SS005E	8780	8780	NA	3990	NA	NA	NA	No	NUT	No	NUT
SELENIUM	4/7	0.24 J	0.59 J	ID-SS005A	0.4	0.28	0.3	4	NA	NA	NA	Yes	NSL	Yes	DET > BKG
SILVER	1/7	0.11 J	0.11 J	ID-SS006	0.11	0.029	NA	0.62	1	0.11	0	No	BSL	No	NONBIO
SODIUM	7/7	5480	9870	ID-SS005D	8710	8710	NA	168	NA	NA	NA	No	NUT	No	NUT
THALLIUM	2/7	0.24 J	0.25 J	ID-SS005A	0.25	0.1	0.7	NA	NA	NA	NA	No	BKG	No	BKG
VANADIUM	7/7	35.6	43	ID-SS005A	39.5	39.5	50	19.5	NA	NA	NA	No	BKG	No	BKG
ZINC	7/7	72.1	81.8	ID-SS005E	76.5	76.5	30	96.2	121	0.68	0	No	BSL	Yes	DET > BKG

1 - Maximum detected concentration. Not used to select COPCs.
2 - Sources of the screening levels are presented on Table 3-1. Values are shaded in these columns if the maximum detected concentration exceeds the screening level or the chemical does not have a screening level (unless the chemical is an essential nutrient).
3 - Maximum Ecological Effects Quotient (EEQ) is calculated by dividing the maximum detected concentration by the screening level. EEQ is unitless.
4 - Chemicals are shaded in these columns if they are initially selected as COPCs for sediment invertebrates.
5 - Chemicals are shaded in this column if they are retained for food chain modeling to evaluate risks to mammals and birds. The food chain modeling screening results are presented in Table 7-4.
mg/kg - milligrams per kilogram
J - estimated

COPC Selection Rationale:
ASL - Above Screening Level
BSL - Below Screening Level
BKG - Below background
DET > BKG - Above background (or there is no background concentration)
NSL - No Screening Level
NONBIO = Non-bioaccumulative chemical
NUT - Essential Nutrient

TERRESTRIAL FOOD CHAIN MODEL - CONSERVATIVE SCENARIO
INVERTIVOROUS AND HERBIVOROUS RECEPTORS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

	Herbivorous Receptors EEQs				Invertivorous Receptors EEQs			
	Mourning Dove		White-footed Mouse		American Robin		Short-Tailed Shrew	
Chemical	NOAEL-based	LOAEL-based	NOAEL-based	LOAEL-based	NOAEL-based	LOAEL-based	NOAEL-based	LOAEL-based
Inorganics								
CADMIUM	3.5E+00	8.1E-01	3.8E+00	5.1E-01	5.7E+01	1.3E+01	1.3E+02	1.8E+01
CHROMIUM	1.8E+00	3.1E-01	1.3E+00	5.3E-02	5.5E+00	9.4E-01	6.5E+00	2.7E-01
COPPER	1.1E+01	8.0E-01	1.6E+00	1.8E-01	5.8E+01	3.8E+00	1.7E+01	1.9E+00
LEAD	7.5E+01	1.7E+00	5.4E+00	1.6E-01	2.2E+02	4.3E+00	2.8E+01	8.6E-01
MERCURY	1.8E+01	1.8E+00	1.5E+00	3.0E-01	1.9E+01	1.9E+00	1.1E+00	2.2E-01
NICKEL	3.4E-01	1.2E-01	7.6E-01	8.9E-02	2.7E+00	9.6E-01	1.4E+01	1.7E+00
SELENIUM	1.4E+01	4.3E+00	2.5E+01	7.9E+00	1.2E+01	3.1E+00	1.3E+01	4.3E+00
ZINC	2.7E+00	1.0E+00	2.0E+00	5.1E-01	5.3E+00	2.1E+00	4.4E+00	1.1E+00

Cells are shaded if the value is greater than 1.0

NOAEL - No Observed Adverse Effects Level
LOAEL - Lowest Observed Adverse Effects Level
EEQ - Ecological Effects Quotient

TABLE 7-4

WETLAND FOOD CHAIN MODEL - CONSERVATIVE SCENARIO
INVERTIVOROUS RECEPTORS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Invertivorous Receptors EEQs			
	Spotted Sandpiper		Short-Tailed Shrew	
	NOAEL-based	LOAEL-based	NOAEL-based	LOAEL-based
Inorganics				
CADMIUM	5.0E-01	1.2E-01	9.7E-01	1.3E-01
COPPER	6.6E+00	3.7E-01	1.7E+00	1.9E-01
NICKEL	8.9E-01	3.2E-01	4.0E+00	4.7E-01
SELENIUM	5.9E-01	1.4E-01	5.6E-01	1.8E-01
ZINC	8.4E-01	3.3E-01	9.0E-01	2.3E-01

Cells are shaded if the value is greater than 1.0

NOAEL - No Observed Adverse Effects Level
LOAEL - Lowest Observed Adverse Effects Level
EEQ - Ecological Effects Quotient

TABLE 7-5

POSITIVE DETECTIONS FOR SURFACE SOIL, COMPARISON TO PLANT AND INVERTEBRATE SCREENING LEVELS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

LOCATION	PLANT SCREENING LEVEL (1)	INVERTEBRATE SCREENING LEVEL (1)	ID-BG-SS01	ID-BG-SS02	ID-BG-SS03	ID-BG-SS04	ID-BG-SS05			ID-BG-SS06	ID-BG-SS07	ID-BG-SS08
SAMPLE ID			BG-ID-SS01	BG-ID-SS02	BG-ID-SS03	BG-ID-SS04	BG-ID-SS05	BG-ID-SS05-AVG	BG-ID-SS05-D	BG-ID-SS06	BG-ID-SS07	BG-ID-SS08
SAMPLE DATE			20080428	20080429	20080429	20080429	20080429	20080429	20080429	20080429	20080429	20080429
SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL
MATRIX			SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE			BACKGROUND	BACKGROUND	BACKGROUND	BACKGROUND	BACKGROUND	BACKGROUND	BACKGROUND	BACKGROUND	BACKGROUND	BACKGROUND
SUBMATRIX			SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH			0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)												
ACENAPHTHENE	20	29	0.014 U	0.014 U	0.0131 U	0.0148 U	0.0143 U	0.01425 U	0.0142 U	0.015 U	0.0136 U	0.0147 U
ACENAPHTHYLENE	NA	29	0.0126 U	0.0126 U	0.0118 U	0.0133 U	0.0128 U	0.01275 U	0.0127 U	0.0135 U	0.0122 U	0.0132 U
ANTHRACENE	NA	29	0.0114 J	0.0084 U	0.0112 J	0.00885 U	0.00854 U	0.008515 U	0.00849 U	0.00897 U	0.00815 U	0.00877 U
BENZO(A)ANTHRACENE	NA	18	0.0126 U	0.0208 J	0.0428	0.0237 J	0.0128 U	0.01275 U	0.0127 U	0.0135 U	0.0122 U	0.0225 J
BENZO(A)PYRENE	NA	18	0.0129 J	0.0126 U	0.0118 U	0.0297 J	0.0216 J	0.013975	0.0127 U	0.0274 J	0.0122 U	0.0253 J
BENZO(B)FLUORANTHENE	NA	18	0.0241 J	0.0477	0.108	0.0588	0.0226 J	0.014475	0.0127 U	0.0368 J	0.0122 U	0.0481
BENZO(G,H,I)PERYLENE	NA	18	0.0126 U	0.0126 U	0.0118 U	0.0133 U	0.0128 U	0.01275 U	0.0127 U	0.0135 U	0.0122 U	0.0132 U
BENZO(K)FLUORANTHENE	NA	18	0.0126 U	0.0126 U	0.0118 U	0.0133 U	0.021 J	0.013675	0.0127 U	0.0225 J	0.0122 U	0.0132 U
CHRYSENE	NA	18	0.0144 J	0.0247 J	0.051	0.0211 J	0.0192 J	0.012775	0.0127 U	0.0245 J	0.0122 U	0.026 J
FLUORANTHENE	NA	29	0.0228 J	0.0373 J	0.041	0.0256 J	0.0151 J	0.010725	0.0127 U	0.0272 J	0.0125 J	0.0378 J
FLUORENE	NA	29	0.0126 U	0.0126 U	0.0118 U	0.0133 U	0.0128 U	0.01275 U	0.0127 U	0.0135 U	0.0122 U	0.0132 U
INDENO(1,2,3-CD)PYRENE	NA	18	0.0126 U	0.0126 U	0.0118 U	0.0133 U	0.0128 U	0.01275 U	0.0127 U	0.0135 U	0.0122 U	0.0132 U
NAPHTHALENE	NA	29	0.0126 U	0.0126 U	0.0118 U	0.0133 U	0.0128 U	0.01275 U	0.0127 U	0.0135 U	0.0122 U	0.0132 U
PHENANTHRENE	NA	29	0.0126 U	0.0129 J	0.0118 U	0.0133 U	0.0128 U	0.01275 U	0.0127 U	0.0135 U	0.0122 U	0.0179 J
PYRENE	NA	18	0.02 J	0.0334 J	0.0429	0.0237 J	0.0146 J	0.010625	0.0133 U	0.0263 J	0.0128 U	0.0317 J
INORGANICS (mg/kg)												
ALUMINUM	NA(2)	NA(2)	8490	7570	7500	10700	9560	9755	9950	9730	10800	10400
ANTIMONY	5	78	0.481 UR	0.502 UR	0.449 UR	0.514 UR	0.487 UR	0.4935 R	0.5 UR	0.523 UR	0.472 UR	0.508 UR
ARSENIC	18	60	3	2.9	3.3	2.7	3.5	3.6	3.7	3.3	3.4	3.3
BARIUM	500	330	103	108	123	118	138	127.5	117	139	123	154
BERYLLIUM	10	40	0.57	0.53	0.49	0.75	0.65	0.655	0.66	0.68	0.7	0.66
CADMIUM	32	140	0.23	0.61	0.75	0.15	0.16	0.145	0.13	0.88	0.25	0.13
CALCIUM	NA	NA	5480 J	22400 J	29800 J	6970 J	16700 J	15750	14800 J	13300 J	10200 J	29300 J
CHROMIUM	1	0.4	**<u>6.8</u>**	**<u>7.1</u>**	**<u>7.4</u>**	**<u>8</u>**	**<u>7.2</u>**	**<u>7.15</u>**	**<u>7.1</u>**	**<u>7.6</u>**	**<u>7.9</u>**	**<u>7.3</u>**
COBALT	13	NA	3.2	3.2	3.8	3.8	3.7	3.8	3.9	4.2	3.9	3.5
COPPER	70	80	11.8	10.7	14.9	11.9	8.7	8.9	9.1	13.1	8.2	11.4
IRON	NA(3)	NA	5610	5410	5220	6390	6310	6370	6430	6580	6650	6700
LEAD	120	1,700	25.3 J	91.9 J	72.2 J	14.9 J	14.4 J	13.95	13.5 J	18.5 J	15.9 J	11.7 J
MAGNESIUM	NA	NA	3020	2720	2620	3750	2960	2965	2970	3300	3490	3090
MANGANESE	220	450	**234 J**	**223 J**	**340 J**	**299 J**	**300 J**	**264.5**	**229 J**	**264 J**	**268 J**	**226 J**
MERCURY	0.3	0.1	0.024	0.023	0.029	0.021	0.014	0.0135	0.013	0.026	0.0061	0.022
NICKEL	38	280	5.5	5.5	6.4	6.7	5.6	5.55	5.5	6.5	6.7	5.4
POTASSIUM	NA	NA	2950	2690	2760	3990	2660	2670	2680	3140	3400	3050
SELENIUM	0.52	4.1	**2.7**	**2.4**	**2.7**	**3**	**2.6**	**2.55**	**2.5**	**2.5**	**2.6**	**2.8**
SILVER	560	NA	0.22	0.42	0.62	0.28	0.28	0.265	0.25	0.39	0.26	0.43
SODIUM	NA	NA	84.1 J	103 J	116 J	168 J	104 J	103	102 J	111 J	91.6 J	113 J
THALLIUM	1	NA	0.603 U	0.628 U	0.582 U	0.663 U	0.637 U	0.628 U	0.619 U	0.657 U	0.595 U	0.646 U
VANADIUM	2	na	**12.7**	**10.9**	**12.2**	**14.2**	**17.5**	**17.55**	**17.6**	**16.6**	**16.2**	**17.4**
ZINC	160	120	66.8	79.1	93.2	60.4	52.5	53.3	54.1	91.4	44.8	67.9
MISCELLANEOUS PARAMETERS (mg/kg)												
PERCHLORATE	1	1.3	0.00081 J	0.000632 U	0.00059 U	0.000664 U	0.000753 J	0.000536	0.000637 U	0.000674 U	0.00122 J	0.000656 U

TABLE 7-5

POSITIVE DETECTIONS FOR SURFACE SOIL, COMPARISON TO PLANT AND INVERTEBRATE SCREENING LEVELS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

LOCATION			ID-BG-SS09			ID-BG-SS10			ID-SS001	ID-SS002	ID-SS003	ID-SS004
SAMPLE ID			BG-ID-SS09	BG-ID-SS09-AVG	BG-ID-SS09-D	BG-ID-SS10	BG-ID-SS10-AVG	BG-ID-SS10-D	ID-SS0010001	ID-SS0020001	ID-SS0030001	ID-SS0040001
SAMPLE DATE			20080430	20080430	20080430	20080430	20080430	20080430	20110623	20110625	20110626	20110626
SAMPLE CODE	PLANT	INVERTEBRATE	ORIG	AVG	DUP	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX	SCREENING	SCREENING	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE	LEVEL [1]	LEVEL [1]	BACKGROUND	BACKGROUND	BACKGROUND	BACKGROUND	BACKGROUND	BACKGROUND	MULTI-INCREMENT	MULTI-INCREMENT	MULTI-INCREMENT	MULTI-INCREMENT
SUBMATRIX			SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH			0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)												
ACENAPHTHENE	20	29	0.0149 U	0.017575	0.0277 J	0.0141 U	0.01415 U	0.0142 U	NA	NA	NA	NA
ACENAPHTHYLENE	NA	29	0.0134 U	0.01495	0.0232 J	0.0127 U	0.01275 U	0.0128 U	NA	NA	NA	NA
ANTHRACENE	NA	29	0.0089 U	0.027825	0.0512	0.00845 U	0.00848 U	0.00851 U	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	18	0.037 J	0.0815	0.126	0.0199 J	0.04485	0.0698	NA	NA	NA	NA
BENZO(A)PYRENE	NA	18	0.0495 J	0.14275	0.236 J	0.0233 J	0.0603	0.0973	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	18	0.0823 J	0.16165	0.241 J	0.0451 J	0.10755	0.17 J	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	18	0.0514 J	0.1197	0.188 J	0.0127 U	0.041775	0.0772	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	18	0.0134 UJ	0.08835	0.17 J	0.0127 U	0.01275 U	0.0128 U	NA	NA	NA	NA
CHRYSENE	NA	18	0.0435 J	0.09675	0.15 J	0.0177 J	0.05105	0.0844	NA	NA	NA	NA
FLUORANTHENE	NA	29	0.0614 J	0.1407	0.22 J	0.0303 J	0.06815	0.106	NA	NA	NA	NA
FLUORENE	NA	29	0.0134 U	0.0187	0.0307 J	0.0127 U	0.01275 U	0.0128 U	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	18	0.087 J	0.1525	0.218 J	0.0127 UJ	0.063675	0.121 J	NA	NA	NA	NA
NAPHTHALENE	NA	29	0.0134 U	0.01375	0.0208 J	0.0127 U	0.01275 U	0.0128 U	NA	NA	NA	NA
PHENANTHRENE	NA	29	0.0184 J	0.05435	0.0903	0.0127 U	0.018725	0.0311 J	NA	NA	NA	NA
PYRENE	NA	18	0.055 J	0.137	0.219 J	0.0273 J	0.0593	0.0913	NA	NA	NA	NA
INORGANICS (mg/kg)												
ALUMINUM	NA[2]	NA[2]	12700	11950	11200	8060	8450	8840	31400	24600	25500	23500
ANTIMONY	5	78	0.515 UR	0.5095 R	0.504 UR	0.493 UR	0.5005 R	0.508 UR	0.15 J	0.06 J	0.06 UJ	0.05 UJ
ARSENIC	18	60	4.6	4.25	3.9	3	3.5	4	4.2	3.5	3.5	2.9
BARIUM	500	330	177 J	170	163 J	137 J	134.5	132 J	256	182	154	128 J
BERYLLIUM	10	40	0.77	0.75	0.73	0.56	0.58	0.6	1	0.85	0.83	0.72 J
CADMIUM	32	140	0.18	0.205	0.23	0.12	0.12	0.122 U	0.2 J	0.3 J	0.15 J	0.27 J
CALCIUM	NA	NA	17400	15500	13600	18200	18200	18200	NA	NA	NA	NA
CHROMIUM	1	0.4	**8.9**	**9.05**	**9.2**	**5.8**	**6.25**	**6.7**	**19.7**	**15.8**	**15.2**	**15 J**
COBALT	13	NA	4.5	4.45	4.4	3.4	3.5	3.6	5.1	4.3	4.7 J	3.9 J
COPPER	70	80	8.7	8.7	8.7	7	7.3	7.6	12.2	12.7	10.7	10 J
IRON	NA[3]	NA	7680	7370	7060	5560	5995	6430	15500	12700	13600	11400
LEAD	120	1,700	14.9 J	16.2	17.5 J	13 J	12.2	11.4 J	20.9	14.1	13.6	16.1 J
MAGNESIUM	NA	NA	4010	3895	3780	2550	2680	2810	6780	5670	5980	5040
MANGANESE	220	450	**284 H**	**289**	**294 H**	211 H	213.5	216 H	**300**	**254**	**281**	**276**
MERCURY	0.3	0.1	0.036	0.0325	0.029	0.015	0.0155	0.016	0.02 U	0.01 U	0.01 U	0.02 J
NICKEL	38	280	7.4	7.25	7.1	5	5.3	5.6	11.4	9.3	9.9	8.8 J
POTASSIUM	NA	NA	3180 H	3220	3260 H	2300 H	2505	2710 H	6290	5160	5400	5100
SELENIUM	0.52	4.1	**4**	**3.8**	**3.6**	**2.8**	**3**	**3.2**	0.15 U	0.12 U	0.13 U	0.42 U
SILVER	560	NA	0.42	0.435	0.45	0.31	0.355	0.4	0.05 J	0.02 U	0.11 J	0.29 J
SODIUM	NA	NA	109	104.25	99.5	82.3	82	81.7	1080	228	302	210
THALLIUM	1	NA	0.668 U	0.644 U	0.62 U	0.619 U	0.6135 U	0.608 U	0.08 UJ	0.06 UJ	0.07 UJ	0.06 U
VANADIUM	2	na	**19.5**	**18.35**	**17.2**	**14.1**	**15.45**	**16.8**	**29.3**	**23.1**	**24.6**	**22.9 J**
ZINC	160	120	60.1	78.15	96.2	40.9	43.5	46.1	61.2	53.9	48.1	42.3 J
MISCELLANEOUS PARAMETERS (mg/kg)												
PERCHLORATE	1	1.3	0.000991 J	0.001081	0.00117 J	0.000635 U	0.000637 U	0.000638 U	NA	NA	NA	NA

TABLE 7-5

POSITIVE DETECTIONS FOR SURFACE SOIL, COMPARISON TO PLANT AND INVERTEBRATE SCREENING LEVELS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 3 OF 7

LOCATION	PLANT SCREENING LEVEL (1)	INVERTEBRATE SCREENING LEVEL (1)	ID-SS005	ID-SS005A	ID-SS005B	ID-SS005C	ID-SS005D	ID-SS005E	ID-SS006	ID-SS007	ID-SS008	ID-SS009
SAMPLE ID			ID-SS0050001	ID-SS0050001-A	ID-SS0050001-B	ID-SS0050001-C	ID-SS0050001-D	ID-SS0050001-E	ID-SS0060001	ID-SS0070001	ID-SS0080001	ID-SS0090001
SAMPLE DATE			20110624	20110624	20110624	20110624	20110624	20110624	20110625	20110623	20110623	20110623
SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX			SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE			MULTI-INCREMENT	MULTI-INCREMENT	MULTI-INCREMENT	MULTI-INCREMENT	MULTI-INCREMENT	MULTI-INCREMENT	MULTI-INCREMENT	MULTI-INCREMENT	MULTI-INCREMENT	MULTI-INCREMENT
SUBMATRIX			SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH			0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)												
ACENAPHTHENE	20	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
INORGANICS (mg/kg)												
ALUMINUM	NA(2)	NA(2)	45500	47500	46000	42000	45500	46200	41600	25000	22900	24500
ANTIMONY	5	78	0.16 J	0.28 J	0.25 J	0.06 U	0.3 J	0.09 J	0.11 U	0.26 J	0.1 J	0.16 J
ARSENIC	18	60	5.7	6	5.7	5.6	5.4	5.6	5	4	3.5	3.2
BARIUM	500	330	424	423	448	436	417	450	420	328	177 J	223
BERYLLIUM	10	40	1.4	1.4	1.4	1.4	1.4	1.4	1.3	0.82	0.75 J	0.8
CADMIUM	32	140	0.52 J	0.01 U	0.01 U	0.45 J	0.25 J	0.21 J	0.01 U	0.27 J	0.35 J	0.04 U
CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	1	0.4	**28.3**	**31.5**	**31.5**	**25.8**	**28.6**	**29.4**	**28.7**	**15.8**	**17.1 J**	**16.1**
COBALT	13	NA	6.1	6.6	6.6	6	6.2	6.4	6.4	4.2	4.7 J	3.9
COPPER	70	80	16.2	15.6	15.8	14.9	15	15.3	14.2	9.5	8.3 J	9.3
IRON	NA(3)	NA	21300	21500	20800	20300	21900	22400	20000	13000	13500	12600
LEAD	120	1,700	17.7	18.9	19.1	16.3	17.2	17.7	18.7	14.6	19.7 J	16.3
MAGNESIUM	NA	NA	11200	11300	11200	10800	10700	10800	10400	5720	5090	5980
MANGANESE	220	450	**341**	**391**	**381**	**328**	**320**	**363**	**385**	**257**	**293**	**228**
MERCURY	0.3	0.1	0.02 J	0.02 J	0.02 J	0.02 J	0.02 J	0.02 J	0.03 J	0.005 U	0.02 J	0.02 U
NICKEL	38	280	14.8	15.6	16.1	14.5	14.8	14.6	14.5	9.5	10.7 J	9.2
POTASSIUM	NA	NA	8820	9030	8930	8320	9010	9070	8260	5090	4990	5620
SELENIUM	0.52	4.1	0.43 J	**0.59 J**	0.25 U	0.24 J	0.34 J	0.17 U	0.27 U	0.16 U	0.19 U	0.13 U
SILVER	560	NA	0.02 U	0.04 U	0.04 U	0.03 U	0.03 U	0.03 U	0.11 J	0.02 U	0.02 UJ	0.07 J
SODIUM	NA	NA	8860	9050	9510	9410	9870	8790	5480	560	195	1060
THALLIUM	1	NA	0.08 U	0.25 J	0.13 U	0.08 U	0.08 U	0.09 U	0.24 J	0.08 U	0.05 U	0.07 UJ
VANADIUM	2	na	**38.9**	**43**	**42.9**	**35.6**	**39.4**	**40.3**	**36.2**	**24.1**	**24.1 J**	**22.5**
ZINC	160	120	77.8	76.3	74.4	72.1	79.5	81.8	73.6	48.1	50.4 J	49.2
MISCELLANEOUS PARAMETERS (mg/kg)												
PERCHLORATE	1	1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 7-5

POSITIVE DETECTIONS FOR SURFACE SOIL, COMPARISON TO PLANT AND INVERTEBRATE SCREENING LEVELS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

LOCATION	PLANT SCREENING LEVEL [1]	INVERTEBRATE SCREENING LEVEL [1]	ID-SS010	ID-SS01	ID-SS01A	ID-SS01B	ID-SS01C	ID-SS02	ID-SS03			ID-SS03A
SAMPLE ID			ID-SS0100001	ID-SS01	ID-SS01A	ID-SS01B	ID-SS01C	ID-SS02	ID-SS03	ID-SS03-AVG	ID-SS03-D	ID-SS03A
SAMPLE DATE			20110622	20080424	20080424	20080424	20080424	20080424	20080425	20080425	20080425	20080425
SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
MATRIX			SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE			MULTI-INCREMENT	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX			SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH			0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)												
ACENAPHTHENE	20	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
INORGANICS (mg/kg)												
ALUMINUM	NA[2]	NA[2]	22100	8110	8430	7920	8590	6660	3790 H	3385	2980 H	5820 H
ANTIMONY	5	78	0.13 J	0.108 UR	0.109 UR	0.13 U	0.15 U	0.112 UR	0.26 U	0.245 U	0.23 U	0.12 U
ARSENIC	18	60	3.6	7.3	7	6	9.5	2.8	1.9 L	1.8	1.7 L	2.6 L
BARIUM	500	330	179 J	159 H	119 H	135 H	130 H	106 H	48.5	44.95	41.4	101
BERYLLIUM	10	40	0.74 J	0.37	0.37	0.41	0.46	0.4	0.15 L	0.14	0.13 L	0.34 L
CADMIUM	32	140	0.14 J	8.5	**40.5**	4.9	5	3.9	5.8 J	11	16.2 J	1.4 J
CALCIUM	NA	NA	NA	32100	19900	19400	19200	17600	12900	11600	10300	44000
CHROMIUM	1	0.4	**13.7**	**24.6 J**	**19.8 J**	**29.9 J**	**31.9 J**	**7.7 J**	**4.1 L**	**4.25**	**4.4 L**	**4.9 L**
COBALT	13	NA	3.9 J	3.6	3.5	4	4.8	2.6	1.2 L	1.15	1.1 L	2.6 L
COPPER	70	80	9 J	**236**	**213**	**160**	**86.4**	35.8	41.3 J	39	36.7 J	13.4 J
IRON	NA[3]	NA	11400	37900	36500	30600	37900	8410	3170 H	2780	2390 H	4050 H
LEAD	120	1,700	13.4 J	42.5 J	39.3 J	52.7 J	34.9 J	17.1 J	21.4 L	20.75	20.1 L	20.5 L
MAGNESIUM	NA	NA	5360	2710	2420	2840	2960	2490	1310 H	1190	1070 H	2820 H
MANGANESE	220	450	**240**	**438**	**350**	**395**	**409**	**264**	105	100.8	96.6	200
MERCURY	0.3	0.1	0.02 J	0.036	0.024	0.026	0.024	0.027	0.028	0.0285	0.029	0.017
NICKEL	38	280	8.9 J	23.7 H	16.9 H	17.7 H	21.6 H	6 H	2.8 L	2.5	2.2 L	4.5 L
POTASSIUM	NA	NA	4640	2050 H	1970 H	2350 H	2420 H	2020 H	898 H	832.5	767 H	2040 H
SELENIUM	0.52	4.1	0.27 U	**4.8**	**13.1**	**3.6**	**11.2**	**2.1**	**0.88 L**	**0.895**	**0.91 L**	**0.98 L**
SILVER	560	NA	0.02 UJ	0.81	1.7	0.58 U	1.5	0.48 U	0.39 L	0.36	0.33 L	0.74 L
SODIUM	NA	NA	1540	98.9	100	105	87.2	79.2	39.1 L	35.45	31.8 L	82 L
THALLIUM	1	NA	0.09 U	0.539 U	0.556 U	0.542 U	0.665 U	0.535 U	0.524 UL	0.5185 U	0.513 UL	0.538 UL
VANADIUM	2	na	**22.4 J**	**11.5**	**10.4**	**12.2**	**12.8**	**9.7**	**5.4 L**	**5**	**4.6 L**	**9.8 L**
ZINC	160	120	41.4 J	**852 J**	**895 J**	**651 J**	**466 J**	127 J	137 H	144.5	152 H	68 H
MISCELLANEOUS PARAMETERS (mg/kg)												
PERCHLORATE	1	1.3	NA	0.000545 U	NA	NA	NA	0.000887 J	0.000857 J	0.000795	0.000733 J	NA

TABLE 7-5

POSITIVE DETECTIONS FOR SURFACE SOIL, COMPARISON TO PLANT AND INVERTEBRATE SCREENING LEVELS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

LOCATION	PLANT SCREENING LEVEL (1)	INVERTEBRATE SCREENING LEVEL (1)	ID-SS03B	ID-SS03C	ID-SS03D	ID-SS04	ID-SS04A	ID-SS04B	ID-SS04C	ID-SS04D	ID-SS05	ID-SS05A
SAMPLE ID			ID-SS03B	ID-SS03C	ID-SS03D	ID-SS04	ID-SS04A	ID-SS04B	ID-SS04C	ID-SS04D	ID-SS05	ID-SS05A
SAMPLE DATE			20080425	20080425	20080425	20080425	20080425	20080425	20080425	20080426	20080426	20080426
SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX			SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX			SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH			0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)												
ACENAPHTHENE	20	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
INORGANICS (mg/kg)												
ALUMINUM	NA(2)	NA(2)	2900 H	2810 H	4380 H	12800 H	3800 H	12600 H	13500 H	14800	7340	5530
ANTIMONY	5	78	0.86 U	0.44 U	0.14 U	**10.7 L**	1.2 U	**5.2 L**	4.9 L	**10.6 J**	0.73 U	0.112 UJ
ARSENIC	18	60	2.5 L	1.7 L	2.5 L	11.3 L	2.4 L	4.1 L	9 L	**18.8**	4.3	3.4
BARIUM	500	330	64	67.1	88	**627**	87.5	226	383	**781 J**	412 J	123 J
BERYLLIUM	10	40	0.13 L	0.16 L	0.28 L	0.22 L	0.18 L	0.52 L	0.4 L	0.27	0.44	0.31
CADMIUM	32	140	6.2 J	1.2 J	0.96 J	140 J	4 J	**48.9 J**	**88.9 J**	**250**	18.1	0.66
CALCIUM	NA	NA	21500	20100	30500	61000	43800	32600	37100	76100	40600	48200
CHROMIUM	1	0.4	**4.8 L**	**5.9 L**	**3.9 L**	**62.7 L**	**19.3 L**	**12.3 L**	**119 L**	**249**	**9.8**	**10.1**
COBALT	13	NA	1.3 L	1.4 L	2.2 L	4.4 L	1.7 L	3.7 L	4.7 L	6.5	3.1	2.7
COPPER	70	80	**150 J**	19.7 J	18.3 J	**1370 J**	53.4 J	**427 J**	**480 J**	**1380 J**	**77.2 J**	13.9 J
IRON	NA(3)	NA	4900 H	2220 H	3060 H	39000 H	3330 H	8950 H	40500 H	77600	6310	4380
LEAD	120	1,700	**253 L**	29.2 L	20.1 L	**1980 L**	93.3 L	**534 L**	**803 L**	**4570 L**	**159 L**	34.9 L
MAGNESIUM	NA	NA	1210 H	1600 H	2280 H	3910 H	2300 H	3820 H	4230 H	4120	3660	3590
MANGANESE	220	450	145	122	174	**1630**	159	**745**	**853**	**1470**	**292**	166
MERCURY	0.3	0.1	0.028	0.034	0.02	0.061	0.028	0.03	0.053	0.072	0.031	0.021
NICKEL	38	280	3.4 L	2.7 L	3.8 L	20.2 L	3.2 L	8.5 L	29.5 L	**121**	7.4	4.5
POTASSIUM	NA	NA	739 H	1050 H	1730 H	1510 H	1250 H	3210 H	2270 H	1660	2610	2110
SELENIUM	0.52	4.1	**1.2 L**	**0.99 L**	**0.67 L**	**1.6 L**	**0.9 L**	**1.8 L**	**5 L**	**40.4**	**2.6**	**1.6**
SILVER	560	NA	0.43 L	0.4 L	0.54 L	3.5 L	0.68 L	1 L	1.6 L	3.1	0.69	0.74
SODIUM	NA	NA	40 L	45.5 L	90 L	183 L	70.9 L	189 L	205 L	199	105	82.6
THALLIUM	1	NA	0.51 UL	0.531 UL	0.539 UL	2.7 UL	0.559 UL	0.563 UL	0.543 UL	0.83 U	0.598 U	0.565 U
VANADIUM	2	na	**5.6 L**	**5.6 L**	**7.9 L**	**10.7 L**	**8.1 L**	**15 L**	**13.6 L**	**13.9**	**14.3**	**12.9**
ZINC	160	120	**923 H**	118 H	70.5 H	**3550 H**	**1770 H**	**1600 H**	**1840 H**	**2660 J**	**497 J**	82.3 J
MISCELLANEOUS PARAMETERS (mg/kg)												
PERCHLORATE	1	1.3	NA	NA	NA	0.00186 J	NA	NA	NA	NA	0.00098 J	NA

TABLE 7-5

POSITIVE DETECTIONS FOR SURFACE SOIL, COMPARISON TO PLANT AND INVERTEBRATE SCREENING LEVELS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 6 OF 7

LOCATION	PLANT SCREENING LEVEL (1)	INVERTEBRATE SCREENING LEVEL (1)	ID-SS05B	ID-SS05D	ID-SS06	ID-SS06A	ID-SS06C	ID-SS06D	ID-SS07	ID-SS07A	ID-SS07B	ID-SS07C
SAMPLE ID			ID-SS05B	ID-SS05D	ID-SS06	ID-SS06A	ID-SS06C	ID-SS06D	ID-SS07	ID-SS07A	ID-SS07B	ID-SS07C
SAMPLE DATE			20080426	20080426	20080427	20080427	20080427	20080427	20080428	20080428	20080429	20080428
SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX			SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX			SS	SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH			0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)												
ACENAPHTHENE	20	29	NA	NA	NA	NA	NA	NA	0.0263 J	0.0245 J	0.0161 U	0.0569
ACENAPHTHYLENE	NA	29	NA	NA	NA	NA	NA	NA	0.0116 U	0.0112 U	0.0145 U	0.0162 U
ANTHRACENE	NA	29	NA	NA	NA	NA	NA	NA	0.0482	0.0579	0.0186 J	0.114
BENZO(A)ANTHRACENE	NA	18	NA	NA	NA	NA	NA	NA	0.164	0.197	0.0145 U	0.219
BENZO(A)PYRENE	NA	18	NA	NA	NA	NA	NA	NA	0.247 J	0.213	0.225	0.264
BENZO(B)FLUORANTHENE	NA	18	NA	NA	NA	NA	NA	NA	0.404 J	0.473	0.217	0.43
BENZO(G,H,I)PERYLENE	NA	18	NA	NA	NA	NA	NA	NA	0.302 J	0.224	1.16	0.198
BENZO(K)FLUORANTHENE	NA	18	NA	NA	NA	NA	NA	NA	0.167 J	0.0112 U	0.0145 U	0.0162 U
CHRYSENE	NA	18	NA	NA	NA	NA	NA	NA	0.21	0.226	0.177	0.227
FLUORANTHENE	NA	29	NA	NA	NA	NA	NA	NA	0.298	0.428	0.0883	0.508
FLUORENE	NA	29	NA	NA	NA	NA	NA	NA	0.0204 J	0.0193 J	0.0145 U	0.0557
INDENO(1,2,3-CD)PYRENE	NA	18	NA	NA	NA	NA	NA	NA	0.24 J	0.203	0.173	0.199
NAPHTHALENE	NA	29	NA	NA	NA	NA	NA	NA	0.0212 J	0.0112 U	0.0145 U	0.0381 J
PHENANTHRENE	NA	29	NA	NA	NA	NA	NA	NA	0.194	0.229	0.0438 J	0.415
PYRENE	NA	18	NA	NA	NA	NA	NA	NA	0.289	0.351	0.1	0.403
INORGANICS (mg/kg)												
ALUMINUM	NA(2)	NA(2)	7560	6440	4360	8500	10300	11700	16600	5770	8290	7020
ANTIMONY	5	78	0.17 U	1.4 U	0.62 U	0.49 U	0.31 U	0.131 UJ	**37 J**	2.3 J	**10.6 J**	2.6 J
ARSENIC	18	60	3.3	5.7	4	3	3.1	3.8	**20**	4.3	6.7	9.3
BARIUM	500	330	133 J	144 J	129 J	112 J	139 J	140 J	372	122	**834**	227
BERYLLIUM	10	40	0.43	0.34	0.26	0.42	0.62	0.67	0.23	0.34	0.56	0.46
CADMIUM	32	140	1.6	14	8.5	0.33	5.7	0.33	**56.6**	6.1	14.6	3.3
CALCIUM	NA	NA	72800	67600	31300	29500	20600	16700	67700 J	50400 J	29100 J	17400 J
CHROMIUM	1	0.4	**9.4**	**11**	**17.4**	**7.2**	**9.6**	**8.4**	**97.5**	**23.2**	**29.7**	**33.6**
COBALT	13	NA	3.1	3.1	2.5	2.5	3.7	3.5	4	3.1	**18.1**	5.9
COPPER	70	80	52.1 J	68.2 J	**217 J**	10 J	**84.6 J**	9.4 J	**1570**	**217**	**202**	**215**
IRON	NA(3)	NA	7250	9160	16400	5900	8410	7780	32900	9580	14900	36700
LEAD	120	1,700	43.6 L	**188 L**	83.1 L	20.2 L	39.7 L	21.4 L	**4320 J**	**1220 J**	**877 J**	**179 J**
MAGNESIUM	NA	NA	3350	3630	1930	2850	3360	3730	3920	2570	3030	3110
MANGANESE	220	450	**226**	**294**	**264**	184	**255**	**281**	**1200 J**	**348 J**	**689 J**	**411 J**
MERCURY	0.3	0.1	0.017	0.02	0.048	0.018	0.073	0.044	0.088	0.06	0.071	0.16
NICKEL	38	280	6.8	6.8	10.1	4.8	9.9	6.1	26.6	7.7	13.3	20.8
POTASSIUM	NA	NA	2670	2090	1580	2660	3520	3830	1420	1860	2110	2560
SELENIUM	0.52	4.1	**2.7**	**3.8**	**8.5**	**3.3**	**4.7**	**4.2**	**13.5**	4.1	**5.5**	**16.6**
SILVER	560	NA	1.1	1	0.6	0.51	0.44	0.34	2.8	1	0.86	0.89
SODIUM	NA	NA	127	190	77.1	97.4	97	96.4	158 J	95.7 J	207 J	138 J
THALLIUM	1	NA	0.575 U	0.578 U	0.6 U	1 U	0.638 U	0.648 U	0.579 U	0.549 U	0.699 U	0.788 U
VANADIUM	2	na	**13.6**	**13.1**	**9**	**12.9**	**16**	**18.4**	**12.6**	**11.6**	**12.5**	**13.5**
ZINC	160	120	112 J	**409 J**	**2570 J**	61.8 J	**207 J**	68.2 J	**7230**	**1530**	**2390**	**1590**
MISCELLANEOUS PARAMETERS (mg/kg)												
PERCHLORATE	1	1.3	NA	NA	0.00227 J	NA	NA	NA	0.00188 J	NA	NA	NA

TABLE 7-5

POSITIVE DETECTIONS FOR SURFACE SOIL, COMPARISON TO PLANT AND INVERTEBRATE SCREENING LEVELS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

LOCATION	PLANT SCREENING LEVEL (1)	INVERTEBRATE SCREENING LEVEL (1)	ID-SS07D	ID-SS08	ID-SS09	ID-SS10	ID-SS11	ID-SS12			ID-SS13
SAMPLE ID			ID-SS07D	ID-SS08	ID-SS09	ID-SS10	ID-SS11	ID-SS12	ID-SS12-AVG	ID-SS12-D	ID-SS13
SAMPLE DATE			20080428	20080425	20080426	20080426	20080427	20080427	20080427	20080427	20080428
SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
MATRIX			SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX			SS	SS	SS	SS	SS	SS	SS	SS	SS
TOP DEPTH			0	0	0	0	0	0	0	0	0
BOTTOM DEPTH			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)											
ACENAPHTHENE	20	29	0.0128 U	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHYLENE	NA	29	0.0605	NA	NA	NA	NA	NA	NA	NA	NA
ANTHRACENE	NA	29	0.0354 J	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	NA	18	0.188	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	NA	18	0.28	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	NA	18	0.66	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	NA	18	0.307	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(K)FLUORANTHENE	NA	18	0.0115 U	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	18	0.251	NA	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	NA	29	0.332	NA	NA	NA	NA	NA	NA	NA	NA
FLUORENE	NA	29	0.0135 J	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	NA	18	0.269	NA	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	NA	29	0.0115 U	NA	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	NA	29	0.148	NA	NA	NA	NA	NA	NA	NA	NA
PYRENE	NA	18	0.296	NA	NA	NA	NA	NA	NA	NA	NA
INORGANICS (mg/kg)											
ALUMINUM	NA (2)	NA (2)	6080	7290 H	8760	10900	8170	8750	7825	6900	8090
ANTIMONY	5	78	1 U	0.3 U	0.12 UJ	0.123 UJ	0.121 UJ	0.163 UJ	0.1395 U	0.116 UJ	1 U
ARSENIC	18	60	5.3	2.2 L	3.5	3.2	3	2.8	2.5	2.2	3.4
BARIUM	500	330	312	107	101 J	135 J	119 J	144 J	123	102 J	148
BERYLLIUM	10	40	0.3	0.33 L	0.57	0.53	0.49	0.5	0.435	0.37	0.53
CADMIUM	32	140	5.8	18.5 J	0.49	0.92	3.2	9.2	7.25	5.3	0.49
CALCIUM	NA	NA	71000 J	9240	8530	8750	48300	44600	39650	34700	41300 J
CHROMIUM	1	0.4	**46**	**4.8 L**	**6.8**	**8**	**6.9**	**6.9**	**6.15**	**5.4**	**8.9**
COBALT	13	NA	3.3	1.8 L	3.1	3.4	3.2	3.2	2.8	2.4	3.1
COPPER	70	80	**73.5**	49.8 J	9.7 J	18.6 J	23.6 J	49.5 J	33.35	17.2 J	12.5
IRON	NA (3)	NA	14600	3830 H	5870	6990	5650	5890	5275	4660	5200
LEAD	120	1,700	**450 J**	11.1 L	18.5 L	45.5 L	21.6 L	21.1 L	18.5	15.9 L	100 J
MAGNESIUM	NA	NA	2570	2060 H	2720	3100	3440	3940	3465	2990	3280
MANGANESE	220	450	**346 J**	170	**228**	**306**	**230**	**251**	218.5	186	**253 J**
MERCURY	0.3	0.1	0.057	0.072	0.019	0.045	0.021	0.013	0.014	0.015	0.15
NICKEL	38	280	13.5	3.8 L	5.1	7.9	6.1	6.4	5.55	4.7	5.4
POTASSIUM	NA	NA	1810	1730 H	3200	3270	3260	3200	2825	2450	2800
SELENIUM	0.52	4.1	**6**	**1.9 L**	**2.7**	**3.7**	**2.9**	**3**	**2.85**	**2.7**	**2.3**
SILVER	560	NA	0.97	0.22 L	0.26	0.37	0.75	0.71	0.625	0.54	0.88
SODIUM	NA	NA	138 J	62.1 L	98.6	88.3	106	112	104	96	324 J
THALLIUM	1	NA	0.571 U	1.05 UL	0.609 U	0.599 U	0.598 U	0.824 U	0.7 U	0.576 U	0.667 U
VANADIUM	2	na	**12.3**	**10.8 L**	**13.9**	**11.8**	**12.3**	**13.4**	**11.85**	**10.3**	**12.1**
ZINC	160	120	**818**	134 H	78 J	137 J	82 J	63.4 J	54.8	46.2 J	130
MISCELLANEOUS PARAMETERS (mg/kg)											
PERCHLORATE	1	1.3	NA	0.00113 J	0.00108 J	0.00102 J	0.00139 J	0.0035	0.003165	0.00283	0.00291

Notes:

1. Sources used in the following order of preference:
   Eco SSL - USEPA Ecological Soil Screening Levels (USEPA, 2003, 2005, 2006, 2007)
   TCEQ - Texas Commission on Environmental Quality Ecological Screening Benchmarks (TCEQ, 2006)
   Sunahara, et al., 2009 - Ecotoxicology of Explosives (Sunahara, et al., 2009)
   Los Alamos, 2009 - ECORISK Database, Release 2.4 (LANL, 2009).
2. Aluminum is considered a COPC only when the soil pH is less than 5.5.
3. Iron is not expected to be toxic to plants with a soil pH between 5 and 8.

Bold - indicates exceedance of plant screening level
Underline - indicates exceedance of invertebrate screening level
mg/kg - milligrams per kilogram
NA - criteria not available or parameter not analyzed for
U - not detected; UR - not detected, rejected data; J - estimated; L - biased low; H - biased high

TABLE 7-6

TERRESTRIAL FOOD CHAIN MODEL - AVERAGE SCENARIO
INVERTIVOROUS AND HERBIVOROUS RECEPTORS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1

	Herbivorous Receptors EEQs				Invertivorous Receptors EEQs			
	Mourning Dove		White-footed Mouse		American Robin		Short-Tailed Shrew	
Chemical	NOAEL-based	LOAEL-based	NOAEL-based	LOAEL-based	NOAEL-based	LOAEL-based	NOAEL-based	LOAEL-based
Inorganics								
CADMIUM	2.5E-01	5.7E-02	5.0E-01	6.7E-02	5.9E+00	1.4E+00	1.3E+01	1.8E+00
CHROMIUM	9.7E-02	1.7E-02	8.7E-02	3.6E-03	4.3E-01	7.3E-02	5.7E-01	2.4E-02
COPPER	9.2E-01	6.7E-02	2.7E-01	3.1E-02	4.6E+00	2.9E-01	1.4E+00	1.6E-01
LEAD	2.7E+00	5.9E-02	3.0E-01	9.0E-03	1.5E+01	2.9E-01	2.7E+00	8.1E-02
MERCURY	5.9E-01	5.9E-02	4.2E-02	8.5E-03	1.2E+01	1.2E+00	6.6E-01	1.3E-01
NICKEL	2.3E-02	8.3E-03	8.2E-02	9.6E-03	2.6E-01	9.5E-02	1.4E+00	1.6E-01
SELENIUM	9.9E-01	3.0E-01	1.7E+00	5.5E-01	1.6E+00	4.2E-01	2.1E+00	6.9E-01
ZINC	3.3E-01	1.3E-01	3.9E-01	1.0E-01	1.5E+00	5.7E-01	1.8E+00	4.5E-01

Cells are shaded if the value is greater than 1.0

NOAEL - No Observed Adverse Effects Level
LOAEL - Lowest Observed Adverse Effects Level
EEQ - Ecological Effects Quotient

TABLE 7-7

WETLAND FOOD CHAIN MODEL - AVERAGE SCENARIO
INVERTIVOROUS RECEPTORS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

	Invertivorous Receptors EEQs			
	Spotted Sandpiper		Short-Tailed Shrew	
Chemical	NOAEL-based	LOAEL-based	NOAEL-based	LOAEL-based
Inorganics				
COPPER	2.0E+00	1.1E-01	4.8E-01	5.5E-02
NICKEL	2.3E-01	8.3E-02	8.0E-01	9.5E-02

Cells are shaded if the value is greater than 1.0

NOAEL - No Observed Adverse Effects Level
LOAEL - Lowest Observed Adverse Effects Level
EEQ - Ecological Effects Quotient

SELECTION OF COPCS FOR PLANTS AND INVERTEBRATES
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

								Plant Screening Level(1)			Invertebrate Screening Level(1)			Deletion or Selection of COPCs for Invertebrates/Plants(3)		Further Evaluated in Terrestrial Food Chain Modeling(4)	
Parameter	Frequency of Detection	Minimum Detection	Maximum Detection	Location of Maximum Detection	Average of Positive Results	Overall Average	Texas-Specific Background Concentration	Screening Level	Maximum EEQ(2)	Number of Screening Level Exceedences	Screening Level	Maximum EEQ(2)	Number of Screening Level Exceedences	COPC (yes/no)?	Rationale	Evaluated (yes/no)?	Rationale
Inorganics (mg/kg)																	
ALUMINUM	1/1	10800	10800	SR-SS17	10800	10800	30000	NA	NA	NA	NA	NA	NA	No	BKG	No	BKG
ANTIMONY	2/2	0.2 L	0.32 L	SR-SS08	0.26	0.26	1	5	0.06	0	78	0.004	0	No	BKG	No	BKG
ARSENIC	15/15	3.5	7.9	SR-SS08	5.0	5.0	5.9	18	0.44	0	60	0.13	0	No	BSL	No	NONBIO
BARIUM	1/1	130	130	SR-SS17	130	130	300	500	0.26	0	330	0.39	0	No	BKG	No	BKG
BERYLLIUM	1/1	0.59	0.59	SR-SS17	0.59	0.59	1.5	10	0.06	0	40	0.01	0	No	BKG	No	BKG
CADMIUM	1/1	0.17	0.17	SR-SS17	0.17	0.17	NA	32	0.01	0	140	0.001	0	No	BSL	Yes	DET > BKG
CALCIUM	1/1	28800	28800	SR-SS17	28800	28800	NA	NA	NA	NA	NA	NA	NA	No	NUT	No	NUT
CHROMIUM	1/1	8	8	SR-SS17	8	8	30	1	8	1	0.4	20	1	No	BKG	No	BKG
COBALT	1/1	3.9 J	3.9 J	SR-SS17	3.9	3.9	7	13	0.3	0	NA	NA	NA	No	BKG	No	BKG
COPPER	15/15	7.7 J	14.2 L	SR-SS10	11.33	11.33	15	70	0.20	0	80	0.18	0	No	BKG	No	BKG
IRON	1/1	6180	6180	SR-SS17	6180	6180	15000	NA	NA	NA	NA	NA	NA	No	BKG	No	BKG
LEAD	15/15	12.8	476 J	SR-SS08	70.3	70.3	15	120	4.0	1	1700	0.28	0	Yes	ASL	Yes	DET > BKG
MAGNESIUM	1/1	3220	3220	SR-SS17	3220	3220	NA	NA	NA	NA	NA	NA	NA	No	NUT	No	NUT
MANGANESE	1/1	248 J	248 J	SR-SS17	248	248	300	220	1.1	1	450	0.55	0	No	BKG	No	BKG
MERCURY	1/1	0.027	0.027	SR-SS17	0.027	0.027	0.04	0.3	0.09	0	0.1	0.27	0	No	BKG	No	BKG
NICKEL	1/1	6.5	6.5	SR-SS17	6.5	6.5	10	38	0.2	0	280	0.02	0	No	BKG	No	BKG
POTASSIUM	1/1	2900	2900	SR-SS17	2900	2900	NA	NA	NA	NA	NA	NA	NA	No	NUT	No	NUT
SELENIUM	1/1	2.2	2.2	SR-SS17	2.2	2.2	0.3	0.52	4.2	1	4.1	0.54	0	Yes	ASL	Yes	DET > BKG
SILVER	1/1	0.21	0.21	SR-SS17	0.21	0.21	NA	560	0.0004	0	NA	NA	NA	Yes	NSL	No	NONBIO
SODIUM	1/1	116	116	SR-SS17	116	116	NA	NA	NA	NA	NA	NA	NA	No	NUT	No	NUT
VANADIUM	1/1	14 J	14 J	SR-SS17	14	14	50	2	7	1	NA	NA	NA	No	BKG	No	BKG
ZINC	15/15	42.1	107	SR-SS10	78	78	30	160	0.67	0	120	0.89	0	No	BSL	Yes	DET > BKG
Miscellaneous Parameters (mg/kg)																	
PERCHLORATE	1/1	0.0239	0.0239	SR-SS17	0.024	0.024	NA	1	0.02	0	1	0.02	0	No	BSL	No	NONBIO
Polycyclic Aromatic Hydrocarbons (mg/kg)																	
1-METHYLNAPHTHALENE	14/45	0.0042 J	0.055	SR-SS22C	0.014	0.0074	NA	NA	NA	NA	29	0.002	0	Yes	NSL	No	NONBIO
2-METHYLNAPHTHALENE	15/45	0.0061 J	0.072	SR-SS22C	0.019	0.011	NA	NA	NA	NA	29	0.002	0	Yes	NSL	No	NONBIO
ACENAPHTHENE	37/59	0.0023 J	7.29	SR-SS05	0.32	0.20	NA	NA	NA	NA	29	0.25	0	Yes	NSL	No	NONBIO
ACENAPHTHYLENE	1/59	0.16	0.16	SR-SS04	0.16	0.05	NA	NA	NA	NA	29	0.01	0	Yes	NSL	No	NONBIO
ANTHRACENE	47/59	0.0015 J	18.5	SR-SS05	0.57	0.46	NA	NA	NA	NA	29	0.64	0	Yes	NSL	No	NONBIO
BENZO(A)ANTHRACENE	55/59	0.007 J	158	SR-SS05	5.3	4.9	NA	NA	NA	NA	18	8.8	2	Yes	ASL	Yes	(5)
BENZO(A)PYRENE	57/59	0.008 J	187	SR-SS05	6.6	6.4	NA	NA	NA	NA	18	10	2	Yes	ASL	Yes	(5)
BENZO(B)FLUORANTHENE	57/59	0.0128 J	323	SR-SS05	10.5	10.1	NA	NA	NA	NA	18	18	6	Yes	ASL	Yes	(5)
BENZO(G,H,I)PERYLENE	57/59	0.005 J	113	SR-SS05	3.9	3.7	NA	NA	NA	NA	18	6.28	2	Yes	ASL	Yes	(5)
BENZO(K)FLUORANTHENE	43/58	0.0066 J	28 J	SR-SS08	1.7	1.3	NA	NA	NA	NA	18	1.56	1	Yes	ASL	Yes	(5)
CHRYSENE	56/59	0.0079 J	171	SR-SS05	5.8	5.5	NA	NA	NA	NA	18	9.50	2	Yes	ASL	Yes	(5)
DIBENZO(A,H)ANTHRACENE	42/59	0.003 J	2.5	SR-SS22C	0.32	0.27	NA	NA	NA	NA	18	0.14	0	Yes	NSL	Yes	(5)
FLUORANTHENE	58/59	0.01 J	273	SR-SS05	7.6	7.5	NA	NA	NA	NA	29	9.4	2	Yes	ASL	No	NONBIO
FLUORENE	25/59	0.004 J	2.51 J	SR-SS05	0.16	0.08	NA	NA	NA	NA	29	0.09	0	Yes	NSL	No	NONBIO
INDENO(1,2,3-CD)PYRENE	57/59	0.009 J	98.2	SR-SS05	3.9	3.8	NA	NA	NA	NA	18	5.5	2	Yes	ASL	Yes	(5)
NAPHTHALENE	30/59	0.0031 J	5.98	SR-SS05	0.33	0.18	NA	NA	NA	NA	29	0.21	0	Yes	NSL	No	NONBIO
PHENANTHRENE	53/59	0.0029 J	85.7	SR-SS05	2.4	2.2	NA	NA	NA	NA	29	3.0	1	Yes	ASL	No	NONBIO
PYRENE	57/59	0.008 J	239	SR-SS05	7.0	6.8	NA	NA	NA	NA	18	13	2	Yes	ASL	Yes	(5)

1 - Sources of the plant and Invertebrate screening levels are presented on Table 1. Values are shaded in these columns if the maximum detected concentration exceeds the screening level or the chemical does not have a screening level (unless the chemical is an essential nutrient).
2 - Maximum Ecological Effects Quotient (EEQ) is calculated by dividing the maximum detected concentration by the screening level. EEQ is unitless.
3 - Chemicals are shaded in these columns if they are initially selected as COPCs for plants and/or invertebrates.
4 - Chemicals are shaded in this column if they are retained for food chain modeling to evaluate risks to mammals and birds. The food chain modeling screening results are presented in Table 11.
5 - Although this chemical is not considered bioaccumulative, it was evaluated because it is significant at the site.
mg/kg - milligrams per kilogram
J - estimated

COPC Selection Rationale:
ASL - Above Screening Level
BSL - Below Screening Level
BKG - Below background
DET > BKG - Above background (or there is no background concentration)
NSL - No Screening Level
NONBIO = Non-bioaccumulative chemical
NUT - Essential Nutrient

TABLE 7-9

TERRESTRIAL FOOD CHAIN MODEL - CONSERVATIVE SCENARIO
INVERTIVOROUS AND HERBIVOROUS RECEPTORS
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

	Herbivorous Receptors EEQs				Invertivorous Receptors EEQs			
	Mourning Dove		White-footed Mouse		American Robin		Short-Tailed Shrew	
Chemical	NOAEL-based	LOAEL-based	NOAEL-based	LOAEL-based	NOAEL-based	LOAEL-based	NOAEL-based	LOAEL-based
Inorganics								
CADMIUM	1.7E-02	4.0E-03	4.3E-02	5.8E-03	1.6E-01	3.8E-02	4.0E-01	5.4E-02
LEAD	8.4E+00	1.9E-01	7.3E-01	2.2E-02	2.8E+01	5.5E-01	4.3E+00	1.3E-01
SELENIUM	6.1E-01	1.9E-01	1.0E+00	3.2E-01	1.1E+00	3.0E-01	1.5E+00	4.8E-01
ZINC	1.2E-01	4.6E-02	1.5E-01	3.8E-02	7.4E-01	2.9E-01	9.8E-01	2.5E-01
PAHs								
BENZO(A)ANTHRACENE	1.1E+00	1.1E-01	1.7E+00	2.9E-02	1.5E+01	1.5E+00	7.3E+01	1.2E+00
BENZO(A)PYRENE	2.0E+00	2.0E-01	7.0E+00	1.2E-01	1.6E+01	1.6E+00	7.3E+01	1.2E+00
BENZO(B)FLUORANTHENE	6.0E+00	6.0E-01	2.9E+01	4.8E-01	4.9E+01	4.9E+00	2.4E+02	4.1E+00
BENZO(G,H,I)PERYLENE	4.9E+00	4.9E-01	2.8E+01	4.7E-01	1.9E+01	1.9E+00	9.6E+01	1.6E+00
BENZO(K)FLUORANTHENE	2.6E-01	2.6E-02	7.7E-01	1.3E-02	4.3E+00	4.3E-01	2.1E+01	3.5E-01
CHRYSENE	1.2E+00	1.2E-01	1.8E+00	3.1E-02	2.3E+01	2.3E+00	1.1E+02	1.9E+00
DIBENZO(A,H)ANTHRACENE	2.9E-02	2.9E-03	1.1E-01	1.8E-03	3.4E-01	3.4E-02	1.7E+00	2.8E-02
INDENO(1,2,3-CD)PYRENE	1.1E+00	1.1E-01	3.7E+00	6.1E-02	1.6E+01	1.6E+00	8.1E+01	1.4E+00
PYRENE	8.4E+00	8.4E-01	4.7E+01	7.8E-01	2.5E+01	2.5E+00	1.2E+02	2.1E+00

Cells are shaded if the value is greater than 1.0

NOAEL - No Observed Adverse Effects Level
LOAEL - Lowest Observed Adverse Effects Level
EEQ - Ecological Effects Quotient

TABLE 7-10

POSITIVE DETECTIONS FOR SURFACE SOIL, COMPARISON TO PLANT AND INVERTEBRATE SCREENING LEVELS
SKEET RANGE SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

LOCATION	PLANT	INVERTEBRATE	SR-SS01	SR-SS02			SR-SS03	SR-SS04	SR-SS05	SR-SS06	SR-SS07	SR-SS08	SR-SS09	SR-SS10
SAMPLE ID	SCREENING	SCREENING	SR-SS01	SR-SS02	SR-SS02-AVG	SR-SS02-D	SR-SS03	SR-SS04	SR-SS05	SR-SS06	SR-SS07	SR-SS08	SR-SS09	SR-SS10
SAMPLE DATE	LEVEL [1]	LEVEL [1]	20080505	20080505	20080505	20080505	20080505	20080505	20080505	20080505	20080506	20080505	20080506	20080506
SAMPLE CODE			NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
TOP DEPTH (FEET)			0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH (FEET)			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)														
1-METHYLNAPHTHALENE	NA	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	NA	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	20	29	0.24 H	0.0138 U	0.01375 U	0.0137 U	0.186 J	0.54	7.29	0.0141 U	0.0415 U	0.7 J	0.587	0.0141 U
ACENAPHTHYLENE	NA	29	0.0416 U	0.0124 U	0.01235 U	0.0123 U	0.399 U	0.16	3.99 U	0.0127 U	0.0415 U	0.0406 UJ	0.404 U	0.0126 U
ANTHRACENE	NA	29	0.475 H	0.00825 UL	0.00824 U	0.00822 UL	0.182 J	1.07 L	18.5	0.00982 L	0.0415 U	1.34 J	1.15	0.00842 UL
BENZO(A)ANTHRACENE	NA	18	5.35 H	0.0124 U	0.01235 U	0.0123 U	7.45	7.86	158	0.0127 U	0.0468	29.6 J	9.95	0.0126 U
BENZO(A)PYRENE	NA	18	6.92 H	0.0124 U	0.01235 U	0.0123 U	12.6	9.83	187	0.0182 J	0.0653	47.3 J	11.3	0.0226 J
BENZO(B)FLUORANTHENE	NA	18	12.5 H	0.0225 J	0.01765	0.0128 J	20.5	20	323	0.037 J	0.117	62.4 J	20.1	0.0452
BENZO(G,H,I)PERYLENE	NA	18	3.81 J	0.0124 U	0.01235 U	0.0123 U	8.93	2.78	113	0.0168 J	0.0479	25.8 J	6.24	0.0211 J
BENZO(K)FLUORANTHENE	NA	18	0.0416 UR	0.0124 U	0.01235 U	0.0123 U	0.399 U	0.0124 U	3.99 U	0.0127 U	0.0415 U	28 J	0.404 U	0.0126 U
CHRYSENE	NA	18	6.04 H	0.0124 UL	0.01235 U	0.0123 UL	8.78	8.67 L	171	0.0171 L	0.048	35.1 L	10.1	0.0205 L
DIBENZO(A,H)ANTHRACENE	NA	18	0.0416 U	0.0124 U	0.01235 U	0.0123 U	0.399 U	0.0124 U	3.99 U	0.0127 U	0.0415 U	0.0406 UJ	0.404 U	0.0126 U
FLUORANTHENE	NA	29	8.68 J	0.0149 J	0.01053	0.0123 U	6	10.4	273	0.0286 J	0.0521	31.3 J	17.3	0.0349 J
FLUORENE	NA	29	0.0819 H	0.0124 U	0.01235 U	0.0123 U	0.399 U	0.194	2.51 J	0.0127 U	0.0415 U	0.281 J	0.233 J	0.0126 U
INDENO(1,2,3-CD)PYRENE	NA	18	3.54 H	0.0124 U	0.01235 U	0.0123 U	7.76	4.97	98.2	0.0146 J	0.0316 J	22.3 J	5.54	0.0176 J
NAPHTHALENE	NA	29	0.236 H	0.0124 U	0.01235 U	0.0123 U	0.399 U	0.477	5.98	0.0127 U	0.0415 U	0.615 J	0.582	0.0126 U
PHENANTHRENE	NA	29	2.4 H	0.0124 U	0.01235 U	0.0123 U	0.76	4.44	85.7	0.0127 U	0.0125 J	8.4 J	5.4	0.0126 U
PYRENE	NA	18	7.59 J	0.0129 U	0.0129 U	0.0129 U	6.86	12.5	239	0.0259 J	0.0471	29.6 J	14	0.0259 J
INORGANICS (mg/kg)														
ALUMINUM	NA[2]	NA[2]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	5	78	0.475 UR	0.475 UR	0.2	0.2 L	0.46 UR	0.483 UR	0.478 UR	0.491 UR	0.475 UR	0.32 L	0.484 UR	0.504 UR
ARSENIC	18	60	3.5	5.6	4.9	4.2	3.8	4.1	4.4	7.3	6.7	7.9	4.2	5.7
BARIUM	500	330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	10	40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	32	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	1	0.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	70	80	11.6 J	11.7 J	10.95	10.2 J	11.2 J	11 J	12.1 J	12.3 J	12.5 L	10.8 J	9.4 L	14.2 L
IRON	NA[3]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	120	1,700	53.9 J	36.2 J	45.55	54.9 J	68.7 J	40.3 J	38.6 J	21.1 J	44.5	**476 J**	64.1	17.5
MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	220	450	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	0.3	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	38	280	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	0.52	4.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	560	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	160	120	64.4	90.6	79.6	68.6	62.5	68.5	87.2	82.2	69.4	86.6	98.4	107
MISCELLANEOUS PARAMETERS (mg/kg)														
PERCHLORATE	1	1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 7-10

POSITIVE DETECTIONS FOR SURFACE SOIL, COMPARISON TO PLANT AND INVERTEBRATE SCREENING LEVELS
SKEET RANGE SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

LOCATION	PLANT SCREENING LEVEL (1)	INVERTEBRATE SCREENING LEVEL (1)	SR-SS11	SR-SS12			SR-SS13	SR-SS14	SR-SS15	SR-SS16	SR-SS16A	SR-SS16B	SR-SS16C
SAMPLE ID			SR-SS11	SR-SS12	SR-SS12-AVG	SR-SS12-D	SR-SS13	SR-SS14	SR-SS150001	SR-SS160001	SR-SS16A0001	SR-SS16B0001	SR-SS16C0001
SAMPLE DATE			20080506	20080506	20080506	20080506	20080506	20080506	20110126	20110125	20110125	20110125	20110125
SAMPLE CODE			NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
TOP DEPTH (FEET)			0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH (FEET)			0.5	0.5	0.5	0.5	0.5	0.5	1	1	1	1	1
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)													
1-METHYLNAPHTHALENE	NA	29	NA	NA	NA	NA	NA	NA	0.002 UJ	0.007 J	0.002 UJ	0.009 U	0.002 UJ
2-METHYLNAPHTHALENE	NA	29	NA	NA	NA	NA	NA	NA	0.003 U	0.009 U	0.003 UJ	0.02 J	0.003 UJ
ACENAPHTHENE	20	29	0.0942 J	0.294 J	0.1576	0.0212 J	0.0411 U	0.0136 U	0.002 U	0.1	0.005 J	0.2	0.002 U
ACENAPHTHYLENE	NA	29	0.161 U	0.012 U	0.01205 U	0.0121 U	0.0411 U	0.0122 U	0.002 U	0.005 U	0.002 U	0.007 U	0.002 U
ANTHRACENE	NA	29	0.203	0.534 L	0.28905	0.0441 L	0.0127 J	0.00815 UL	0.002 UJ	0.3 J	0.01 J	0.3	0.004 J
BENZO(A)ANTHRACENE	NA	18	2.87	7.45 J	3.987	0.524 J	0.178	0.0122 U	0.04	3	0.2	5	0.03
BENZO(A)PYRENE	NA	18	4.4	9.61 J	5.1125	0.615 J	0.3	0.0214 J	0.06	4	0.3	6 J	0.04
BENZO(B)FLUORANTHENE	NA	18	8.25	16.7 J	8.895	1.09 J	0.541	0.0438	0.09	6	0.4	7	0.05
BENZO(G,H,I)PERYLENE	NA	18	2.37	4.28 J	2.33	0.38 J	0.181	0.0217 J	0.03	2	0.2	3	0.02 J
BENZO(K)FLUORANTHENE	NA	18	0.161 U	0.012 U	0.01205 U	0.0121 U	0.0411 U	0.0122 U	0.02 J	2 J	0.2	3 J	0.01 J
CHRYSENE	NA	18	3.31	8 L	4.268	0.536 L	0.232	0.0198 L	0.04 J	4 J	0.2	6	0.03
DIBENZO(A,H)ANTHRACENE	NA	18	0.161 U	0.012 U	0.0174	0.0288 J	0.0411 U	0.0122 U	0.002 UJ	0.5 J	0.04	0.6	0.004 J
FLUORANTHENE	NA	29	3.58	9.21 J	4.9385	0.667 J	0.21	0.0375 J	0.04	5	0.2	8	0.04
FLUORENE	NA	29	0.161 U	0.111	0.05853	0.0121 U	0.0411 U	0.0122 U	0.004 U	0.04 J	0.004 U	0.06 J	0.004 U
INDENO(1,2,3-CD)PYRENE	NA	18	2.19	4.38 J	2.3665	0.353 J	0.152	0.0186 J	0.01 J	3	0.3	1	0.04
NAPHTHALENE	NA	29	0.0903 J	0.284 J	0.15455	0.0251 J	0.0411 U	0.0122 U	0.004 U	0.1	0.006 J	0.2	0.003 U
PHENANTHRENE	NA	29	0.893	2.16 J	1.183	0.206 J	0.052	0.0122 U	0.008 J	1	0.04	2	0.01 J
PYRENE	NA	18	3.97	9.51 J	5.067	0.624 J	0.222	0.0281 J	0.03 J	3	0.2	7	0.04
INORGANICS (mg/kg)													
ALUMINUM	NA(2)	NA(2)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	5	78	0.472 UR	0.459 UR	0.4695 R	0.48 UR	0.487 UR	0.489 UR	NA	NA	NA	NA	NA
ARSENIC	18	60	4.9	4.2	4	3.8	5.4	4.9	NA	NA	NA	NA	NA
BARIUM	500	330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	10	40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	32	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	1	0.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	70	80	13 L	8.6 L	9.1	9.6 L	13.3 L	10.8 L	NA	NA	NA	NA	NA
IRON	NA(3)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	120	1,700	97.5	19.9	18.95	18	25.4	12.8	NA	NA	NA	NA	NA
MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	220	450	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	0.3	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	38	280	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	0.52	4.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	560	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	160	120	87.8	60.3	62.5	64.7	93.9	70.5	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (mg/kg)													
PERCHLORATE	1	1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 7-10

POSITIVE DETECTIONS FOR SURFACE SOIL, COMPARISON TO PLANT AND INVERTEBRATE SCREENING LEVELS
SKEET RANGE SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

LOCATION			SR-SS17		SR-SS17A	SR-SS17B	SR-SS18	SR-SS19			SR-SS19A	SR-SS19B	SR-SS19C	SR-SS19D
SAMPLE ID			SR-SS17	SR-SS170001	SR-SS17A0001	SR-SS17B0001	SR-SS180001	SR-SS190001	SR-SS190001	SR-SS190001	SR-SS19A0001	SR-SS19B0001	SR-SS19C0001	SR-SS19D0001
SAMPLE DATE	PLANT	INVERTEBRATE	20080507	20110125	20110125	20110125	20110125	20110125	20110125	20110125	20110125	20110125	20110125	20110125
SAMPLE CODE	SCREENING	SCREENING	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE TYPE	LEVEL (1)	LEVEL (1)	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
TOP DEPTH (FEET)			0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH (FEET)			0.5	1	1	1	1	1	1	1	1	1	1	1
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)														
1-METHYLNAPHTHALENE	NA	29	NA	0.2 UJ	0.02 U	0.002 UJ	0.002 UJ	0.002 UJ	0.002 U	0.002 UJ	0.002 UJ	0.002 UJ	0.002 UJ	0.009 U
2-METHYLNAPHTHALENE	NA	29	NA	0.3 U	0.04 J	0.003 UJ	0.003 UJ	0.003 U	0.003 U	0.003 U	0.003 UJ	0.003 UJ	0.003 UJ	0.01 J
ACENAPHTHENE	20	29	NA	0.3 J	0.3	0.003 J	0.003 J	0.01 J	0.02	0.03	0.004 J	0.002 U	0.002 U	0.1 J
ACENAPHTHYLENE	NA	29	NA	0.1 U	0.02 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.006 U
ANTHRACENE	NA	29	NA	0.5 J	0.6	0.009 J	0.007 J	0.04 J	0.07	0.1 J	0.01 J	0.003 J	0.004 J	0.2
BENZO(A)ANTHRACENE	NA	18	NA	11	8	0.1	0.09	0.3 J	0.65	1 J	0.1	0.03 J	0.03	3
BENZO(A)PYRENE	NA	18	NA	12	10 J	0.2	0.1	0.4 J	0.7	1 J	0.1	0.03	0.04	4 J
BENZO(B)FLUORANTHENE	NA	18	NA	19	12	0.2	0.2	0.6 J	1.3	2 J	0.2	0.04	0.06	4
BENZO(G,H,I)PERYLENE	NA	18	NA	5	5	0.09	0.07	0.2 J	0.4	0.6 J	0.08	0.02 J	0.03	2
BENZO(K)FLUORANTHENE	NA	18	NA	6 J	6 J	0.07	0.06	0.2 J	0.4	0.6 J	0.07	0.01 J	0.02 J	2 J
CHRYSENE	NA	18	NA	12 J	11	0.1	0.1	0.4 J	0.7	1 J	0.1	0.02 J	0.04	4
DIBENZO(A,H)ANTHRACENE	NA	18	NA	1 J	1	0.02 J	0.01 J	0.04 J	0.12	0.2 J	0.02 J	0.003 J	0.006 J	0.3
FLUORANTHENE	NA	29	NA	19	12	0.2	0.1	0.6 J	1.3	2 J	0.2	0.03	0.04	4
FLUORENE	NA	29	NA	0.4 U	0.09 J	0.004 U	0.004 U	0.004 U	0.006	0.01 J	0.004 U	0.004 U	0.004 U	0.03 J
INDENO(1,2,3-CD)PYRENE	NA	18	NA	9	9	0.1	0.1	0.3 J	0.65	1 J	0.1	0.03 J	0.05	3
NAPHTHALENE	NA	29	NA	0.3 U	0.3	0.004 U	0.004 U	0.008 J	0.024	0.04 J	0.004 U	0.003 U	0.004 U	0.08 J
PHENANTHRENE	NA	29	NA	4	2 J	0.04	0.04	0.1 J	0.3	0.5 J	0.05	0.009 J	0.01 J	1
PYRENE	NA	18	NA	13	17	0.1	0.1	0.3 J	0.65	1 J	0.1	0.02 J	0.04	4
INORGANICS (mg/kg)														
ALUMINUM	NA[2]	NA[2]	10800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	5	78	0.112 UR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	18	60	**3.5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	500	330	**130**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	10	40	**0.59**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	32	140	**0.17**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CALCIUM	NA	NA	28800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	1	0.4	**8**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	13	NA	**3.9 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	70	80	**7.7 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IRON	NA[3]	NA	6180	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	120	1,700	**29.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	NA	NA	3220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	220	450	**248 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	0.3	0.1	**0.027**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	38	280	**6.5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	NA	NA	2900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	0.52	4.1	**2.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	560	NA	**0.21**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	NA	NA	116	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	2	NA	**14 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	160	120	**42.1**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (mg/kg)														
PERCHLORATE	1	1.3	**0.0239**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 7-10

POSITIVE DETECTIONS FOR SURFACE SOIL, COMPARISON TO PLANT AND INVERTEBRATE SCREENING LEVELS
SKEET RANGE SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

LOCATION	PLANT SCREENING LEVEL (1)	INVERTEBRATE SCREENING LEVEL (1)	SR-SS19E	SR-SS20	SR-SS21	SR-SS22	SR-SS22A	SR-SS22B	SR-SS22C	SR-SS22D	SR-SS22E	SR-SS23	SR-SS23A	SR-SS23B
SAMPLE ID			SR-SS19E0001	SR-SS200001	SR-SS210001	SR-SS0220001	SR-SS022A0001	SR-SS022B0001	SR-SS022C0001	SR-SS022D0001	SR-SS022E0001	SR-SS0230001	SR-SS023A0001	SR-SS023B0001
SAMPLE DATE			20110125	20110125	20110125	20110426	20110426	20110426	20110426	20110426	20110426	20110426	20110426	20110426
SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
TOP DEPTH (FEET)			0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH (FEET)			1	1	1	1	1	1	1	1	1	1	1	1
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)														
1-METHYLNAPHTHALENE	NA	29	0.002 UJ	0.002 UJ	0.002 UJ	0.013 J	0.011 J	0.0042 J	0.055	0.015 J	0.033	0.009 J	0.0019 U	0.002 U
2-METHYLNAPHTHALENE	NA	29	0.003 UJ	0.003 UJ	0.003 UJ	0.01 J	0.012 J	0.0061 J	0.072	0.02 J	0.04	0.0081 J	0.0024 U	0.0025 U
ACENAPHTHENE	20	29	0.002 U	0.002 U	0.002 U	0.077	0.047	0.028	0.32 J	0.11	0.15	0.069	0.0026 J	0.0017 U
ACENAPHTHYLENE	NA	29	0.002 U	0.002 U	0.002 U	0.0014 U	0.0013 U	0.0014 U	0.0013 U	0.0014 U	0.0014 U	0.0014 U	0.0013 U	0.0014 U
ANTHRACENE	NA	29	0.002 U	0.002 U	0.002 U	0.1	0.054	0.051	0.5 J	0.23	0.22	0.11	0.0064 J	0.0015 J
BENZO(A)ANTHRACENE	NA	18	0.007 J	0.02 J	0.009 J	2.9 J	2.3	0.99	8.2	2.6	6	1.5 J	0.061	0.023 J
BENZO(A)PYRENE	NA	18	0.004 U	0.02 J	0.008 J	5.5 J	4	1.3	12	3.3	9.6	2.4 J	0.068	0.033
BENZO(B)FLUORANTHENE	NA	18	0.003 U	0.04	0.02 J	7 J	5.8	2	17	4.7	13	2.9 J	0.1	0.048
BENZO(G,H,I)PERYLENE	NA	18	0.003 U	0.01 J	0.005 J	4.5 J	3.2	0.84	8.5	2.1	6.1	2 J	0.036	0.021 J
BENZO(K)FLUORANTHENE	NA	18	0.004 U	0.01 J	0.004 U	2.6 J	1.6	0.54	5.7	1.6	4.5	1.2 J	0.034	0.019 J
CHRYSENE	NA	18	0.002 U	0.01 J	0.002 U	3.6 J	2.7	1.1	9.7	2.9	6.6	1.8 J	0.065	0.028
DIBENZO(A,H)ANTHRACENE	NA	18	0.002 U	0.002 U	0.002 U	0.89 J	0.87 J	0.2	2.5	0.6 J	1.9	0.27 J	0.011 J	0.0044 J
FLUORANTHENE	NA	29	0.002 U	0.03	0.01 J	2.3	1.8	1.3	10	4.1	5.2	1.7	0.097	0.032
FLUORENE	NA	29	0.004 U	0.004 U	0.004 U	0.027	0.016 J	0.0085 J	0.14	0.051	0.058	0.028	0.0036 U	0.0037 U
INDENO(1,2,3-CD)PYRENE	NA	18	0.002 U	0.02 J	0.009 J	5.5 J	4.5 J	1.2 J	12 J	3 J	8.8 J	2.5 J	0.056	0.032
NAPHTHALENE	NA	29	0.004 U	0.004 U	0.003 U	0.084	0.05	0.022 J	0.31 J	0.072	0.18	0.097	0.0029 U	0.003 U
PHENANTHRENE	NA	29	0.002 U	0.008 J	0.003 J	0.43 J	0.27	0.26	2.8	1.2	1.1 J	0.55 J	0.033	0.0084 J
PYRENE	NA	18	0.003 U	0.02 J	0.008 J	3.3 J	1.8	1.1	9.4	3.2	4.7	2.2 J	0.076	0.029
INORGANICS (mg/kg)														
ALUMINUM	NA (2)	NA (2)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	5	78	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	18	60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	500	330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	10	40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	32	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	1	0.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	70	80	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IRON	NA (3)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	120	1,700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	220	450	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	0.3	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	38	280	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	0.52	4.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	560	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	160	120	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (mg/kg)														
PERCHLORATE	1	1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 7-10

POSITIVE DETECTIONS FOR SURFACE SOIL, COMPARISON TO PLANT AND INVERTEBRATE SCREENING LEVELS
SKEET RANGE SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

LOCATION	PLANT SCREENING LEVEL (1)	INVERTEBRATE SCREENING LEVEL (1)	SR-SS23C	SR-SS23D	SR-SS23E	SR-SS24	SR-SS24A	SR-SS24B	SR-SS24C	SR-SS24D	SR-SS24E	SR-SS25		
SAMPLE ID			SR-SS023C0001	SR-SS023D0001	SR-SS023E0001	SR-SS240001	SR-SS24A0001	SR-SS24B0001	SR-SS24C0001	SR-SS24D0001	SR-SS24E0001	SR-SS250001	SR-SS250001-	SR-SS250001-D
SAMPLE DATE			20110426	20110426	20110426	20110620	20110620	20110620	20110620	20110620	20110620	20110620	20110620	20110620
SAMPLE CODE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
TOP DEPTH (FEET)			0	0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH (FEET)			1	1	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)														
1-METHYLNAPHTHALENE	NA	29	0.0019 U	0.0055 J	0.0019 U	0.0059 J	0.0073 J	0.0018 U	0.0076 J	0.0019 U	0.0069 J	0.0018 U	0.00185 U	0.0019 U
2-METHYLNAPHTHALENE	NA	29	0.0024 U	0.0071 J	0.0025 U	0.0024 U	0.0087 J	0.0023 U	0.009 J	0.0024 U	0.0082 J	0.0024 U	0.00245 U	0.0025 U
ACENAPHTHENE	20	29	0.0032 J	0.029	0.01 J	0.033	0.035 J	0.0088 J	0.029 J	0.0017 UJ	0.028 J	0.0016 U	0.00165 U	0.0017 U
ACENAPHTHYLENE	NA	29	0.0013 U	0.0014 U	0.0013 U	0.0013 U	0.0012 UJ	0.0013 UJ	0.0012 UJ	0.0013 UJ	0.0013 UJ	0.0013 U	0.00135 U	0.0014 U
ANTHRACENE	NA	29	0.0056 J	0.055	0.022 J	0.064	0.048	0.017 J	0.039	0.0013 U	0.038	0.0013 U	0.00135 U	0.0014 U
BENZO(A)ANTHRACENE	NA	18	0.11	1	0.34	1.2	1.3	0.26 J	1.1	0.015 J	1.1	0.016 J	0.031	0.046
BENZO(A)PYRENE	NA	18	0.16	1.4	0.46	2	2.2	0.38	2.1	0.034	1.9	0.02 J	0.042	0.064
BENZO(B)FLUORANTHENE	NA	18	0.24	2	0.65	3.1	2.8	0.52	2.8	0.044	2.5	0.028 J	0.069	0.11 J
BENZO(G,H,I)PERYLENE	NA	18	0.094	0.9	0.24	1.1	1.6	0.18	1.7	0.019 J	1.4	0.0052 J	0.0151	0.025
BENZO(K)FLUORANTHENE	NA	18	0.076	0.67	0.22	0.82	1.1	0.18	0.96	0.017 J	0.93	0.0066 J	0.0138	0.021 J
CHRYSENE	NA	18	0.13	1.2	0.36	1.3	1.6	0.28	1.6	0.018 J	1.4	0.0079 J	0.01745	0.027
DIBENZO(A,H)ANTHRACENE	NA	18	0.026	0.23	0.071	0.21 J	0.45 J	0.064	0.45 J	0.0055 J	0.39 J	0.0019 U	0.00418	0.0074 J
FLUORANTHENE	NA	29	0.13	1.4	0.45	1.1	1.1	0.32	0.89	0.018 J	1	0.01 J	0.0205	0.031
FLUORENE	NA	29	0.0035 U	0.01 J	0.004 J	0.014 J	0.014 J	0.0034 U	0.01 J	0.0035 U	0.0097 J	0.0034 U	0.0035 U	0.0036 U
INDENO(1,2,3-CD)PYRENE	NA	18	0.14	1.3 J	0.42 J	1.9	2.2	0.36	2.4	0.029 J	2	0.0097 J	0.01885	0.028
NAPHTHALENE	NA	29	0.0028 U	0.029	0.0081 J	0.034	0.039	0.01 J	0.038	0.0029 U	0.035	0.0028 U	0.00285 U	0.0029 U
PHENANTHRENE	NA	29	0.034	0.34	0.13	0.26 J	0.23 J	0.085 J	0.2 J	0.0037 J	0.19 J	0.0029 J	0.0056	0.0083 J
PYRENE	NA	18	0.12	1.2	0.45	1.1	1.1 J	0.27 J	1.1 J	0.014 J	0.92 J	0.0097 J	0.02235	0.035
INORGANICS (mg/kg)														
ALUMINUM	NA(2)	NA(2)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	5	78	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	18	60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	500	330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	10	40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	32	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	1	0.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	70	80	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IRON	NA(3)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	120	1,700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	220	450	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	0.3	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	38	280	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	0.52	4.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	560	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	160	120	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (mg/kg)														
PERCHLORATE	1	1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 7-10

POSITIVE DETECTIONS FOR SURFACE SOIL, COMPARISON TO PLANT AND INVERTEBRATE SCREENING LEVELS
SKEET RANGE SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

LOCATION	PLANT SCREENING LEVEL (1)	INVERTEBRATE SCREENING LEVEL (1)	SR-SS26	SR-SS27	SR-SS28	SR-SS29			SR-SS30	SR-SS31	SR-SS32	SR-SS33	SR-SS34
SAMPLE ID			SR-SS260001	SR-SS270001	SR-SS280001	SR-SS290001	SR-SS290001-	SR-SS290001-D	SR-SS300001	SR-SS310001	SR-SS032001	SR-SS033001	SR-SS034001
SAMPLE DATE			20110620	20110621	20110919	20110919	20110919	20110919	20110919	20110919	20110923	20110923	20110923
SAMPLE CODE			NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SAMPLE TYPE			NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
TOP DEPTH (FEET)			0	0	0	0	0	0	0	0	0	0	0
BOTTOM DEPTH (FEET)			0.5	0.5	1	1	1	1	1	1	1	1	1
POLYCYCLIC AROMATIC HYDROCARBONS (mg/kg)													
1-METHYLNAPHTHALENE	NA	29	0.0019 U	0.0019 U	0.0086 J	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0019 U	0.0018 U	0.002 U
2-METHYLNAPHTHALENE	NA	29	0.0025 U	0.0025 U	0.0094 J	0.0024 U	0.0024 U	0.0024 U	0.0025 U	0.0025 U	0.0024 U	0.0023 U	0.0026 U
ACENAPHTHENE	20	29	0.0017 U	0.0055 J	0.041	0.0023 J	0.0055	0.0087 J	0.0017 U	0.0017 U	0.0016 U	0.0016 U	0.0018 U
ACENAPHTHYLENE	NA	29	0.0014 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0014 U	0.0014 U	0.0013 U	0.0012 U	0.0014 U
ANTHRACENE	NA	29	0.0039 J	0.016 J	0.057	0.0066 J	0.00765	0.0087 J	0.024	0.0026 J	0.0013 U	0.0012 U	0.0029 J
BENZO(A)ANTHRACENE	NA	18	0.082	0.21	1.2	0.095 J	0.2575	0.42 J	0.11	0.018 J	0.008 J	0.02 J	0.011 J
BENZO(A)PYRENE	NA	18	0.11	0.27	2.2	0.19 J	0.595	1 J	0.12	0.028 J	0.012 J	0.035	0.015 J
BENZO(B)FLUORANTHENE	NA	18	0.18	0.31	2.1	0.2 J	0.55	0.9 J	0.12	0.026 J	0.013 J	0.039 J	0.0028 UJ
BENZO(G,H,I)PERYLENE	NA	18	0.047	0.12	1.1	0.12 J	0.41	0.7 J	0.067	0.015 J	0.0084 J	0.024	0.011 J
BENZO(K)FLUORANTHENE	NA	18	0.044	0.1	2.4	0.18 J	0.535	0.89 J	0.14	0.023 J	0.011 J	0.032	0.0037 U
CHRYSENE	NA	18	0.052	0.14	1.6	0.12 J	0.35	0.58 J	0.12	0.021 J	0.011 J	0.028	0.016 J
DIBENZO(A,H)ANTHRACENE	NA	18	0.012 J	0.022 J	0.58	0.063 J	0.1565	0.25 J	0.037	0.0068 J	0.0037 J	0.01 J	0.0049 J
FLUORANTHENE	NA	29	0.07	0.24	1.2	0.09 J	0.2	0.31 J	0.27	0.029 J	0.013 J	0.025	0.024 J
FLUORENE	NA	29	0.0036 U	0.0036 U	0.016 J	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.0035 U	0.0033 U	0.0038 U
INDENO(1,2,3-CD)PYRENE	NA	18	0.059	0.13	1.1	0.12 J	0.385	0.65 J	0.068	0.014 J	0.012 J	0.034	0.016 J
NAPHTHALENE	NA	29	0.003 U	0.0031 J	0.054	0.0029 U	0.00488	0.0083 J	0.0029 U	0.003 U	0.0028 U	0.0027 U	0.0031 U
PHENANTHRENE	NA	29	0.022 J	0.072	0.33	0.027 U	0.03075	0.048 J	0.14	0.018 U	0.0046 J	0.0065 J	0.015 J
PYRENE	NA	18	0.068	0.23	1.5	0.1 J	0.24	0.38 J	0.24	0.03 J	0.017 J	0.032	0.033
INORGANICS (mg/kg)													
ALUMINUM	NA(2)	NA(2)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	5	78	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	18	60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	500	330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	10	40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	32	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	1	0.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	70	80	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IRON	NA(3)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	120	1,700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	220	450	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	0.3	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	38	280	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	0.52	4.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	560	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	160	120	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (mg/kg)													
PERCHLORATE	1	1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1. Sources used in the following order of preference:
   Eco SSL - USEPA Ecological Soil Screening Levels (USEPA, 2003, 2005, 2006, 2007)
   TCEQ - Texas Commission on Environmental Quality Ecological Screening Benchmarks (TCEQ, 2006)
   Sunahara, et al., 2009 - Ecotoxicology of Explosives (Sunahara, et al., 2009)
   Los Alamos, 2009 - ECORISK Database, Release 2.4 (LANL, 2009).
2. Aluminum is considered a COPC only when the soil pH is less than 5.5.
3. Iron is not expected to be toxic to plants with a soil pH between 5 and 8.

Bold - indicates exceedance of plant screening level
Underline - indicates exceedance of invertebrate screening level
mg/kg - milligrams per kilogram
NA - criteria not available or parameter not analyzed for
U - not detected; UR - not detected, rejected data; J - estimated; L - biased low; H - biased high

TABLE 7-11

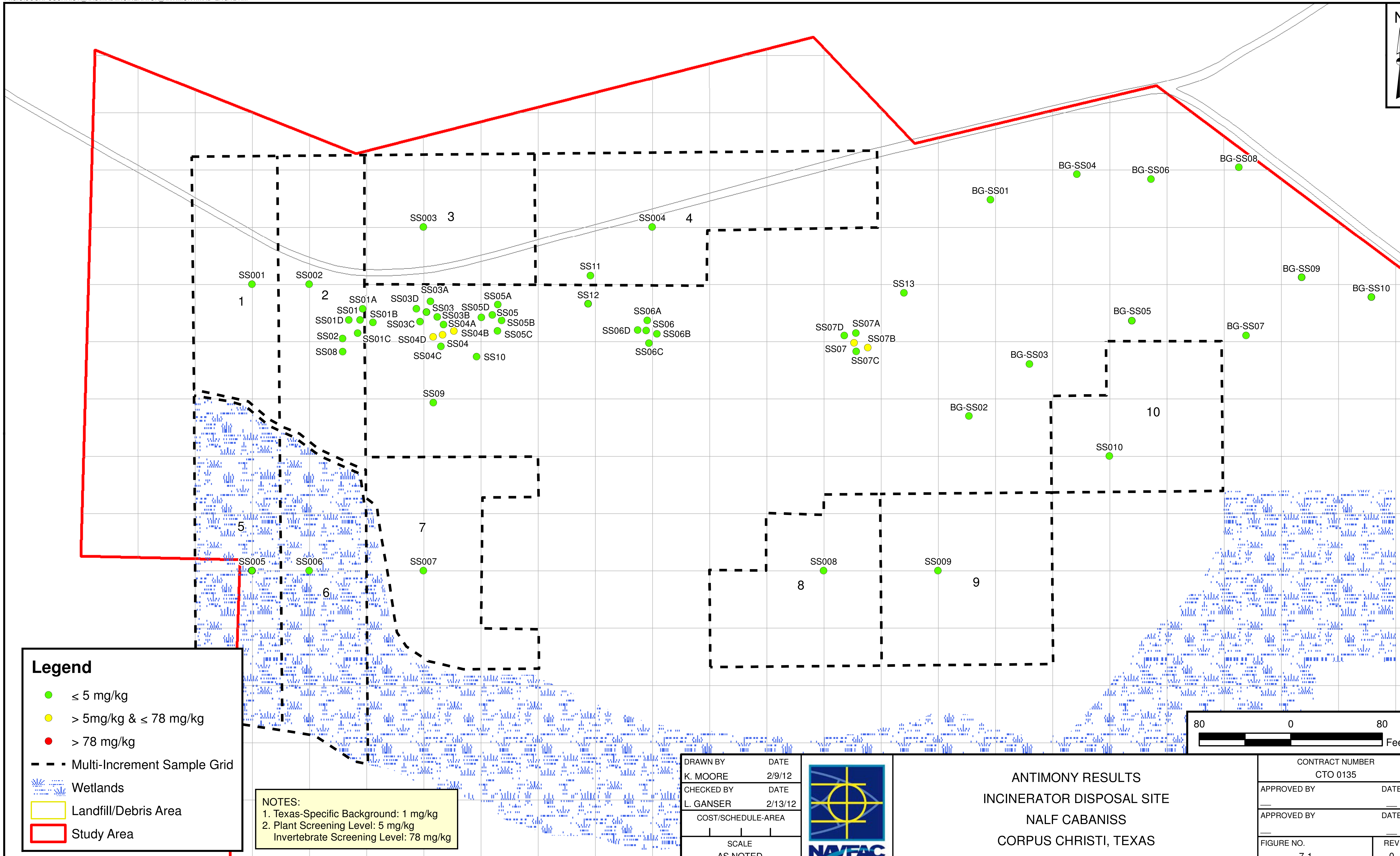
TERRESTRIAL FOOD CHAIN MODEL - AVERAGE SCENARIO
INVERTIVOROUS AND HERBIVOROUS RECEPTORS
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 1 OF 1

	Herbivorous Receptors EEQs				Invertivorous Receptors EEQs			
	Mourning Dove		White-footed Mouse		American Robin		Short-Tailed Shrew	
Chemical	NOAEL-based	LOAEL-based	NOAEL-based	LOAEL-based	NOAEL-based	LOAEL-based	NOAEL-based	LOAEL-based
Inorganics								
LEAD	8.0E-01	1.8E-02	1.1E-01	3.4E-03	4.5E+00	8.7E-02	8.6E-01	2.6E-02
SELENIUM	5.8E-01	1.8E-01	1.0E+00	3.2E-01	1.1E+00	2.9E-01	1.5E+00	4.8E-01
PAHs								
BENZO(A)ANTHRACENE	2.1E-02	2.1E-03	6.1E-02	1.0E-03	5.0E-01	5.0E-02	2.3E+00	3.9E-02
BENZO(A)PYRENE	5.1E-02	5.1E-03	2.3E-01	3.8E-03	5.4E-01	5.4E-02	2.5E+00	4.2E-02
BENZO(B)FLUORANTHENE	1.6E-01	1.6E-02	8.7E-01	1.4E-02	1.6E+00	1.6E-01	7.7E+00	1.3E-01
BENZO(G,H,I)PERYLENE	9.1E-02	9.1E-03	5.1E-01	8.5E-03	6.8E-01	6.8E-02	3.2E+00	5.4E-02
BENZO(K)FLUORANTHENE	1.0E-02	1.0E-03	4.3E-02	7.2E-04	2.1E-01	2.1E-02	1.0E+00	1.7E-02
CHRYSENE	2.3E-02	2.3E-03	6.7E-02	1.1E-03	7.9E-01	7.9E-02	3.7E+00	6.2E-02
DIBENZO(A,H)ANTHRACENE	2.3E-03	2.3E-04	1.0E-02	1.7E-04	4.0E-02	4.0E-03	1.9E-01	3.1E-03
INDENO(1,2,3-CD)PYRENE	2.9E-02	2.9E-03	1.2E-01	2.0E-03	6.8E-01	6.8E-02	3.2E+00	5.4E-02
PYRENE	2.3E-01	2.3E-02	1.3E+00	2.2E-02	7.5E-01	7.5E-02	3.5E+00	5.9E-02

Cells are shaded if the value is greater than 1.0

NOAEL - No Observed Adverse Effects Level
LOAEL - Lowest Observed Adverse Effects Level
EEQ - Ecological Effects Quotient

P:\GIS\COURPUSCHRISTI_NAS\MXD\INCINERATOR_ANTIMONY.MXD 2/13/12 KM

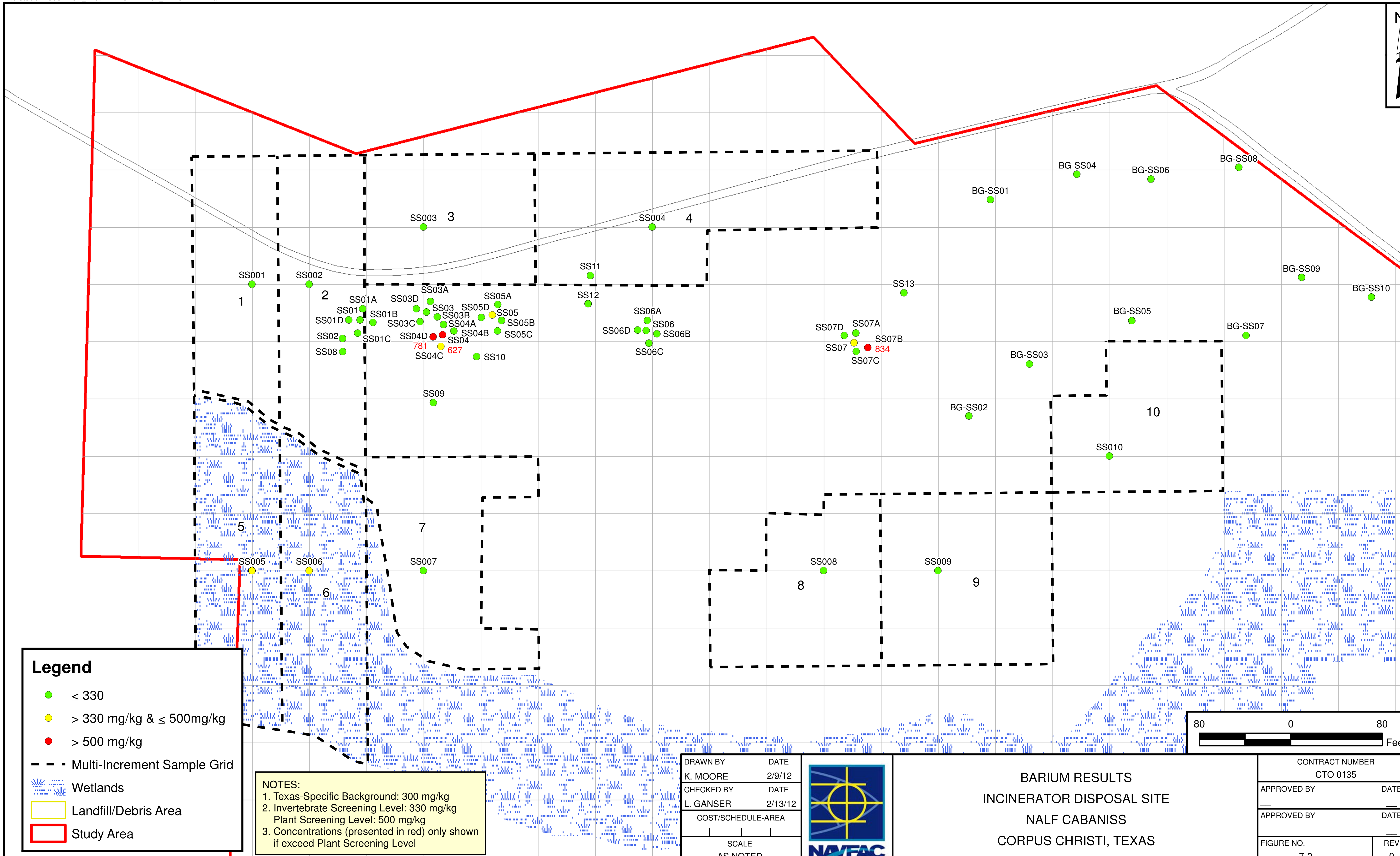


NOTES:
1. Texas-Specific Background: 1 mg/kg
2. Plant Screening Level: 5 mg/kg
Invertebrate Screening Level: 78 mg/kg

DRAWN BY K. MOORE	DATE 2/9/12	ANTIMONY RESULTS	CONTRACT NUMBER CTO 0135
CHECKED BY L. GANSER	DATE 2/13/12	INCINERATOR DISPOSAL SITE	APPROVED BY / DATE
COST/SCHEDULE-AREA		NALF CABANISS	APPROVED BY / DATE
SCALE AS NOTED		CORPUS CHRISTI, TEXAS	FIGURE NO. 7-1 / REV 0

NAVFAC

P:\GIS\COURPUSCHRISTI_NAS\MXD\INCINERATOR_BARIUM.MXD 2/9/12 KM



NOTES:
1. Texas-Specific Background: 300 mg/kg
2. Invertebrate Screening Level: 330 mg/kg
Plant Screening Level: 500 mg/kg
3. Concentrations (presented in red) only shown if exceed Plant Screening Level

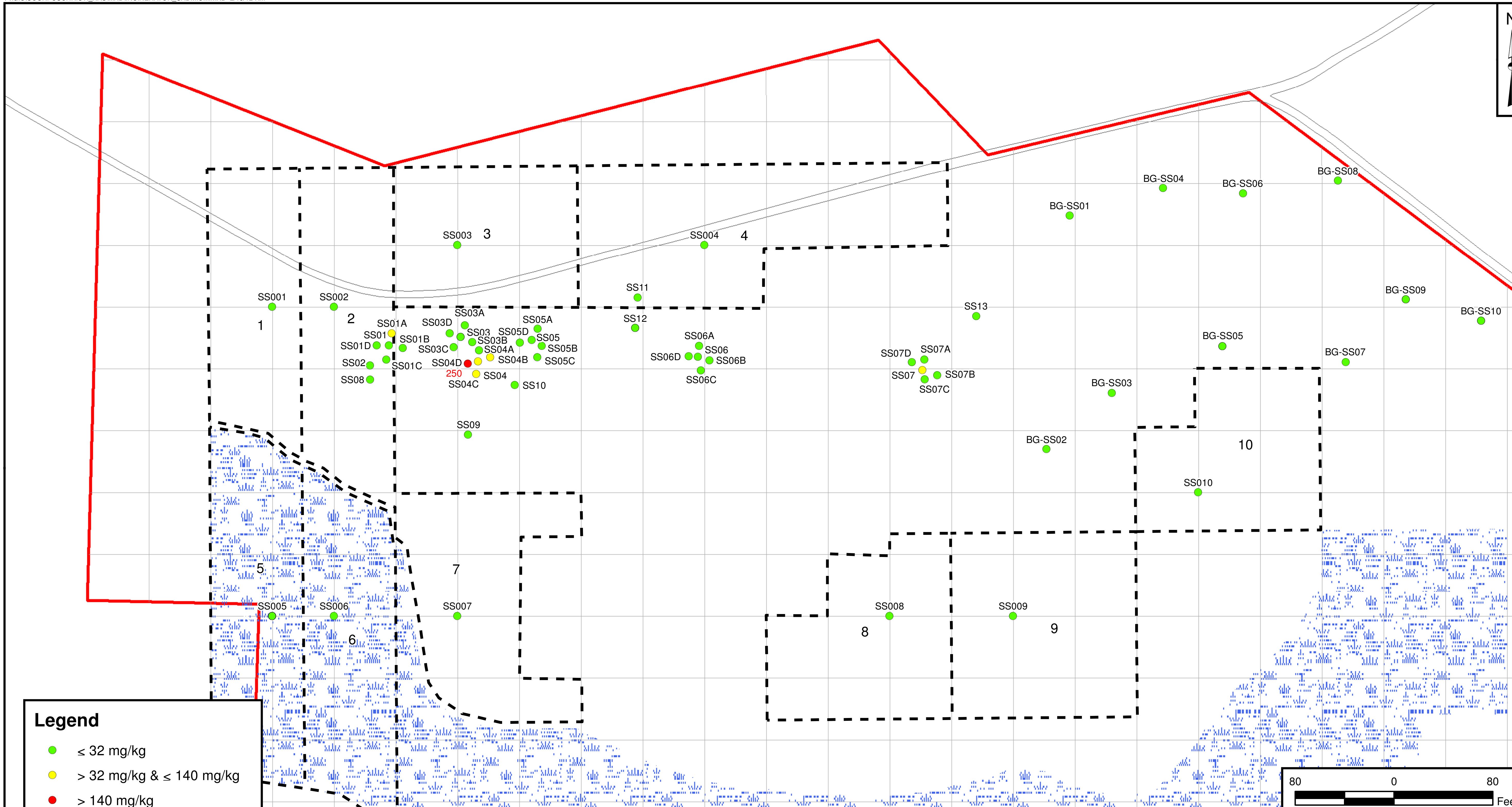
DRAWN BY	DATE
K. MOORE	2/9/12
CHECKED BY	DATE
L. GANSER	2/13/12
COST/SCHEDULE-AREA	
SCALE	
AS NOTED	

NAVFAC

BARIUM RESULTS
INCINERATOR DISPOSAL SITE
NALF CABANISS
CORPUS CHRISTI, TEXAS

CONTRACT NUMBER	
CTO 0135	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO.	REV
7-2	0

P:\GIS\COURPUSCHRISTI_NAS\MXD\INCINERATOR_CADMIUM.MXD 2/13/12 KM



Legend

- ≤ 32 mg/kg
- > 32 mg/kg & ≤ 140 mg/kg
- > 140 mg/kg
- Multi-Increment Sample Grid
- Wetlands
- Landfill/Debris Area
- Study Area

NOTES:
1. Texas-Specific Background: not available
2. Plant Screening Level: 32 mg/kg
   Invertebrate Screening Level: 140 mg/kg
3. Concentrations (presented in red) only shown if exceed Invertebrate Screening Level

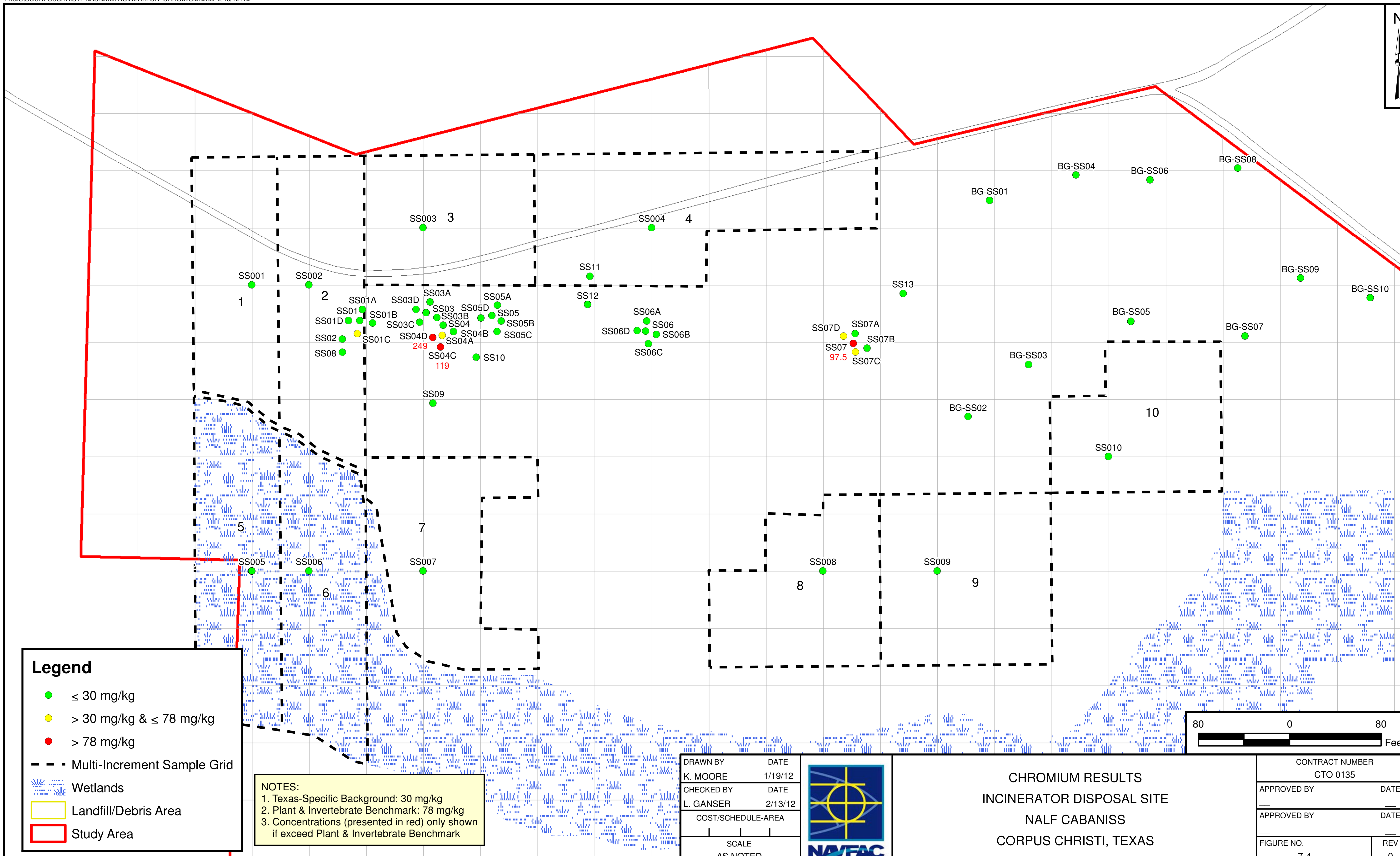
DRAWN BY	DATE
K. MOORE	2/9/12
CHECKED BY	DATE
L. GANSER	2/13/12
COST/SCHEDULE-AREA	
SCALE	
AS NOTED	

NAVFAC

CADMIUM RESULTS
INCINERATOR DISPOSAL SITE
NALF CABANISS
CORPUS CHRISTI, TEXAS

CONTRACT NUMBER	
CTO 0135	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO.	REV
7-3	0

P:\GIS\COURPUSCHRISTI_NAS\MXD\INCINERATOR_CHROMIUM.MXD 2/13/12 KM



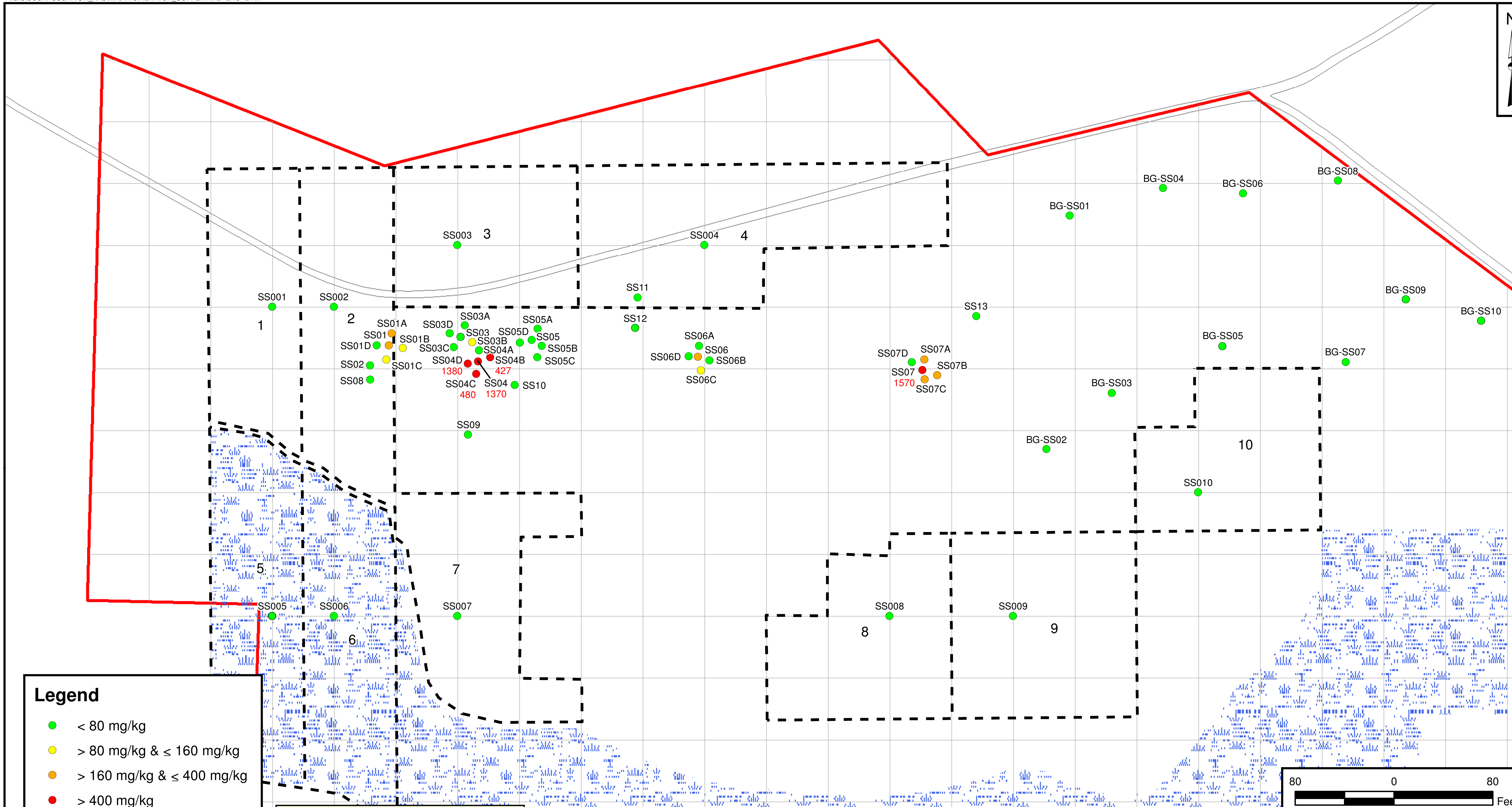
DRAWN BY	DATE
K. MOORE	1/19/12
CHECKED BY	DATE
L. GANSER	2/13/12
COST/SCHEDULE-AREA	
SCALE	
AS NOTED	

NAVFAC

CHROMIUM RESULTS
INCINERATOR DISPOSAL SITE
NALF CABANISS
CORPUS CHRISTI, TEXAS

CONTRACT NUMBER	
CTO 0135	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO.	REV
7-4	0

P:\GIS\COURPUSCHRISTI_NAS\MXD\INCINERATOR_COPPER.MXD 2/13/12 KM



NOTES:
1. Texas-Specific Background: 15 mg/kg
2. Plant Screening Level: 70 mg/kg
Invertebrate Screening Level: 80 mg/kg
2x Invertebrate Screening Level: 160 mg/kg
5x Invertebrate Screening Level: 400 mg/kg
3. Concentrations (presented in red) only shown if exceed 5x Invertebrate Screening Level

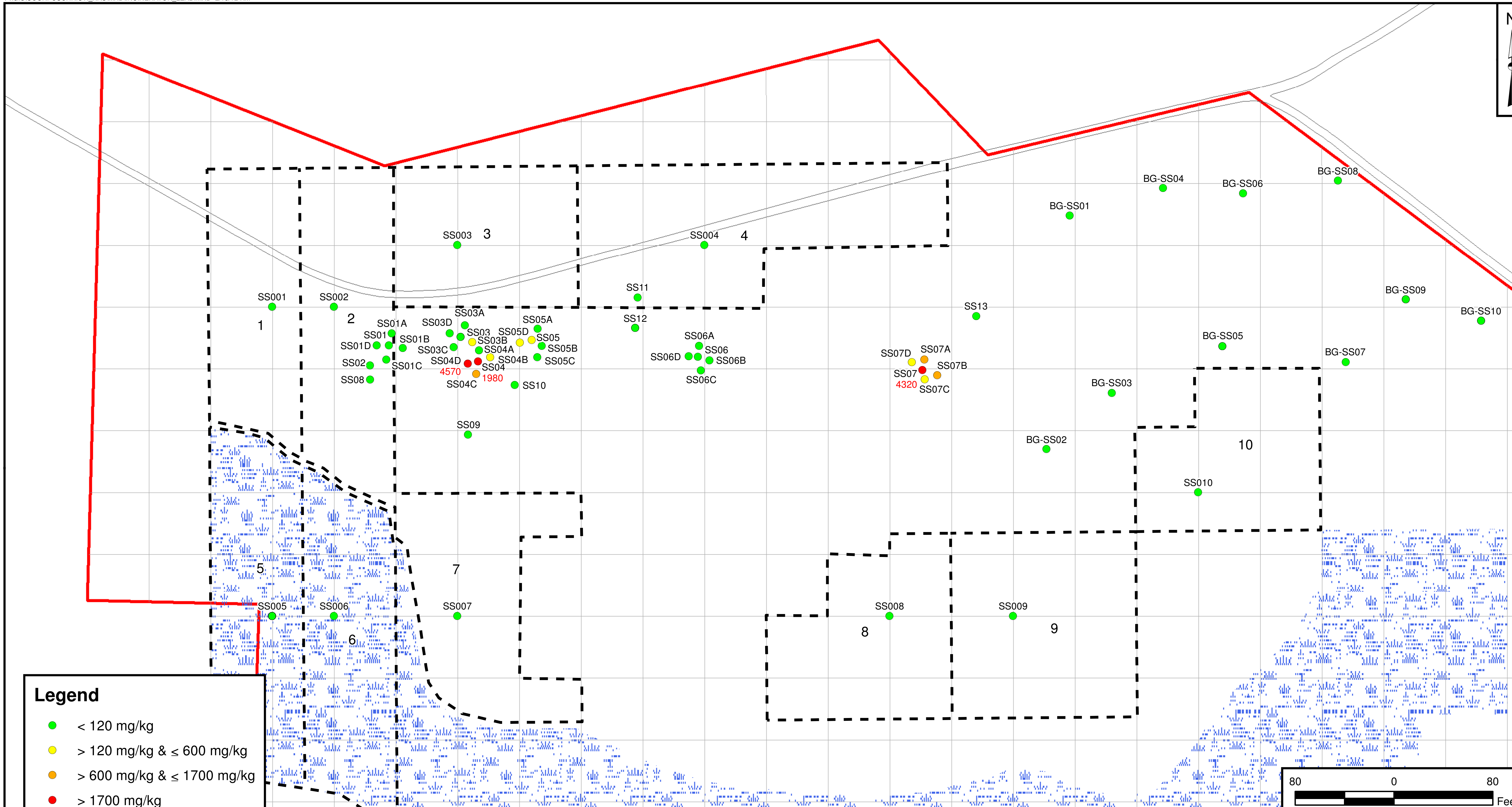
DRAWN BY K. MOORE	DATE 1/19/12	
CHECKED BY L. GANSER	DATE 2/13/12	
COST/SCHEDULE-AREA		
SCALE AS NOTED		

NAVFAC

COPPER RESULTS
INCINERATOR DISPOSAL SITE
NALF CABANISS
CORPUS CHRISTI, TEXAS

CONTRACT NUMBER CTO 0135	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO. 7-5	REV 0

P:\GIS\COURPUSCHRISTI_NAS\MXD\INCINERATOR_LEAD.MXD 2/13/12 KM



Legend

- < 120 mg/kg
- > 120 mg/kg & ≤ 600 mg/kg
- > 600 mg/kg & ≤ 1700 mg/kg
- > 1700 mg/kg
- Multi-Increment Sample Grid
- Wetlands
- Landfill/Debris Area
- Study Area

NOTES:
1. Texas-Specific Background: 15 mg/kg
2. Plant Screening Level: 120 mg/kg
   5x Plant Screening Level: 600 mg/kg
   Invertebrate Screening Level: 1700 mg/kg
3. Concentrations (presented in red) only shown if exceed Invertebrate Screening Level

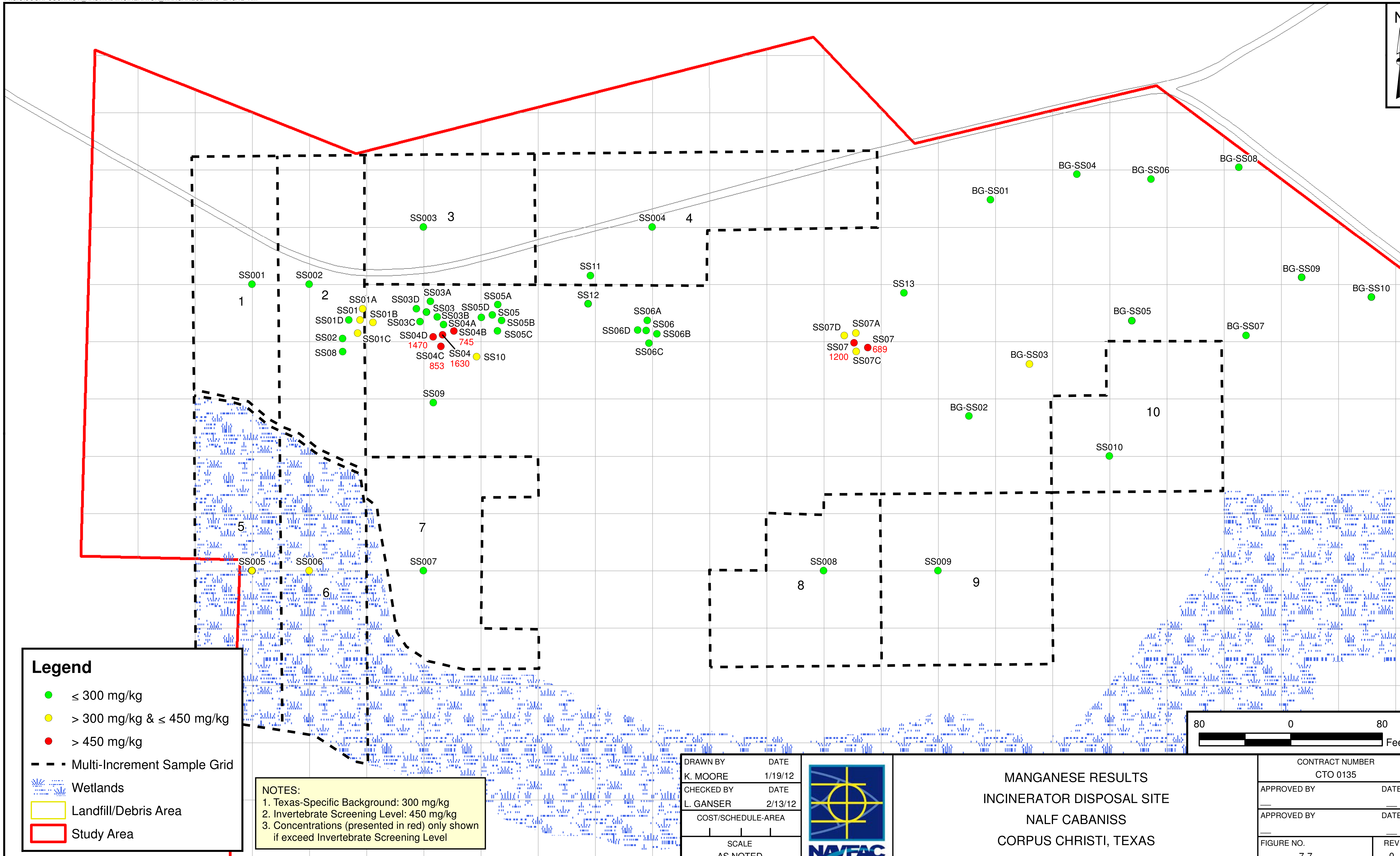
DRAWN BY	DATE
K. MOORE	1/19/12
CHECKED BY	DATE
L. GANSER	2/13/12
COST/SCHEDULE-AREA	
SCALE	
AS NOTED	

NAVFAC

LEAD RESULTS
INCINERATOR DISPOSAL SITE
NALF CABANISS
CORPUS CHRISTI, TEXAS

CONTRACT NUMBER	
CTO 0135	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO.	REV
7-6	0

P:\GIS\COURPUSCHRISTI_NAS\MXD\INCINERATOR_MANGANESE.MXD 2/13/12 KM



NOTES:
1. Texas-Specific Background: 300 mg/kg
2. Invertebrate Screening Level: 450 mg/kg
3. Concentrations (presented in red) only shown if exceed Invertebrate Screening Level

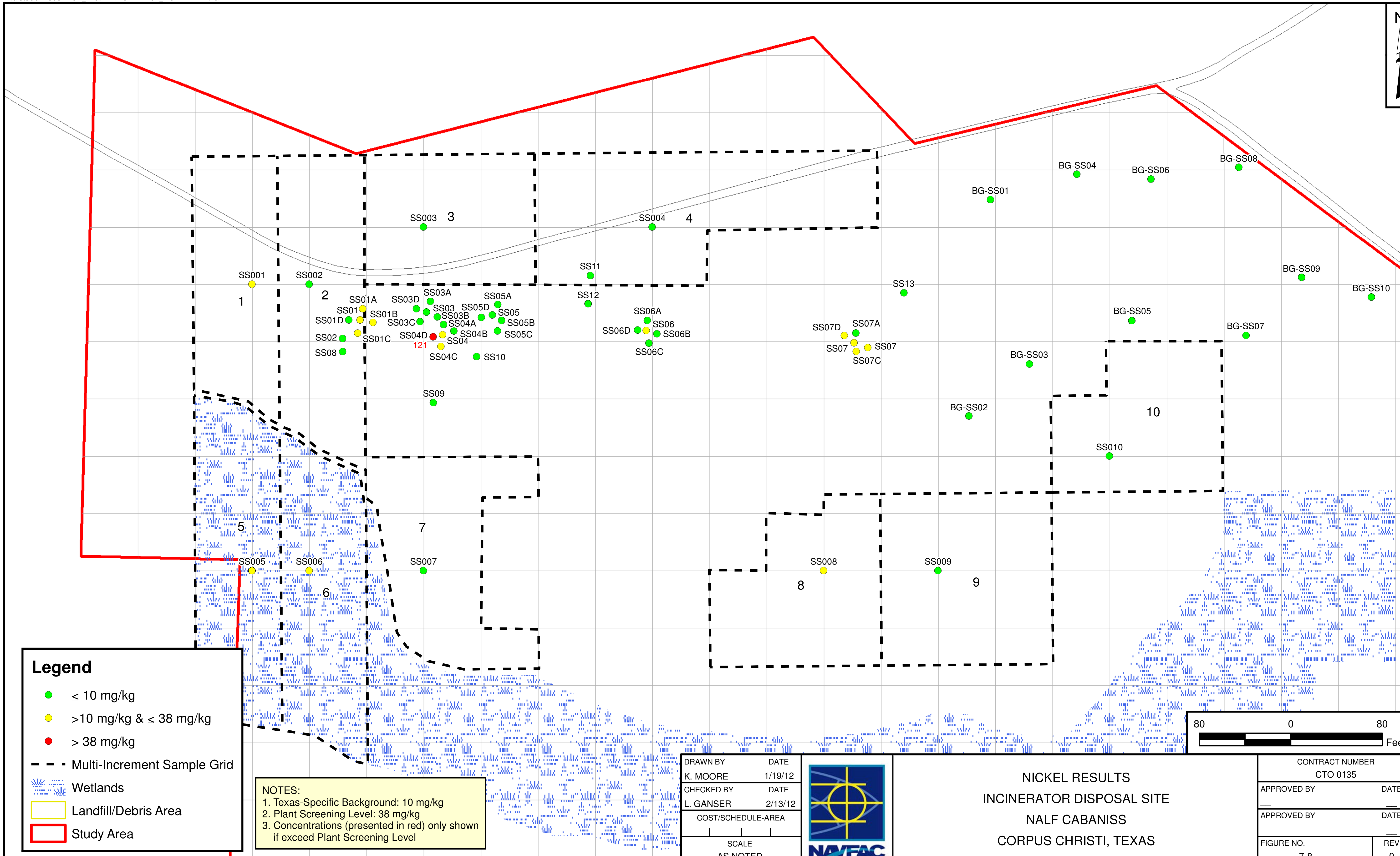
DRAWN BY	DATE
K. MOORE	1/19/12
CHECKED BY	DATE
L. GANSER	2/13/12
COST/SCHEDULE-AREA	
SCALE	
AS NOTED	

NAVFAC

MANGANESE RESULTS
INCINERATOR DISPOSAL SITE
NALF CABANISS
CORPUS CHRISTI, TEXAS

CONTRACT NUMBER	
CTO 0135	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO.	REV
7-7	0

P:\GIS\COURPUSCHRISTI_NAS\MXD\INCINERATOR_NICKEL.MXD 2/13/12 KM



Legend

- ≤ 10 mg/kg
- >10 mg/kg & ≤ 38 mg/kg
- > 38 mg/kg
- Multi-Increment Sample Grid
- Wetlands
- Landfill/Debris Area
- Study Area

NOTES:
1. Texas-Specific Background: 10 mg/kg
2. Plant Screening Level: 38 mg/kg
3. Concentrations (presented in red) only shown if exceed Plant Screening Level

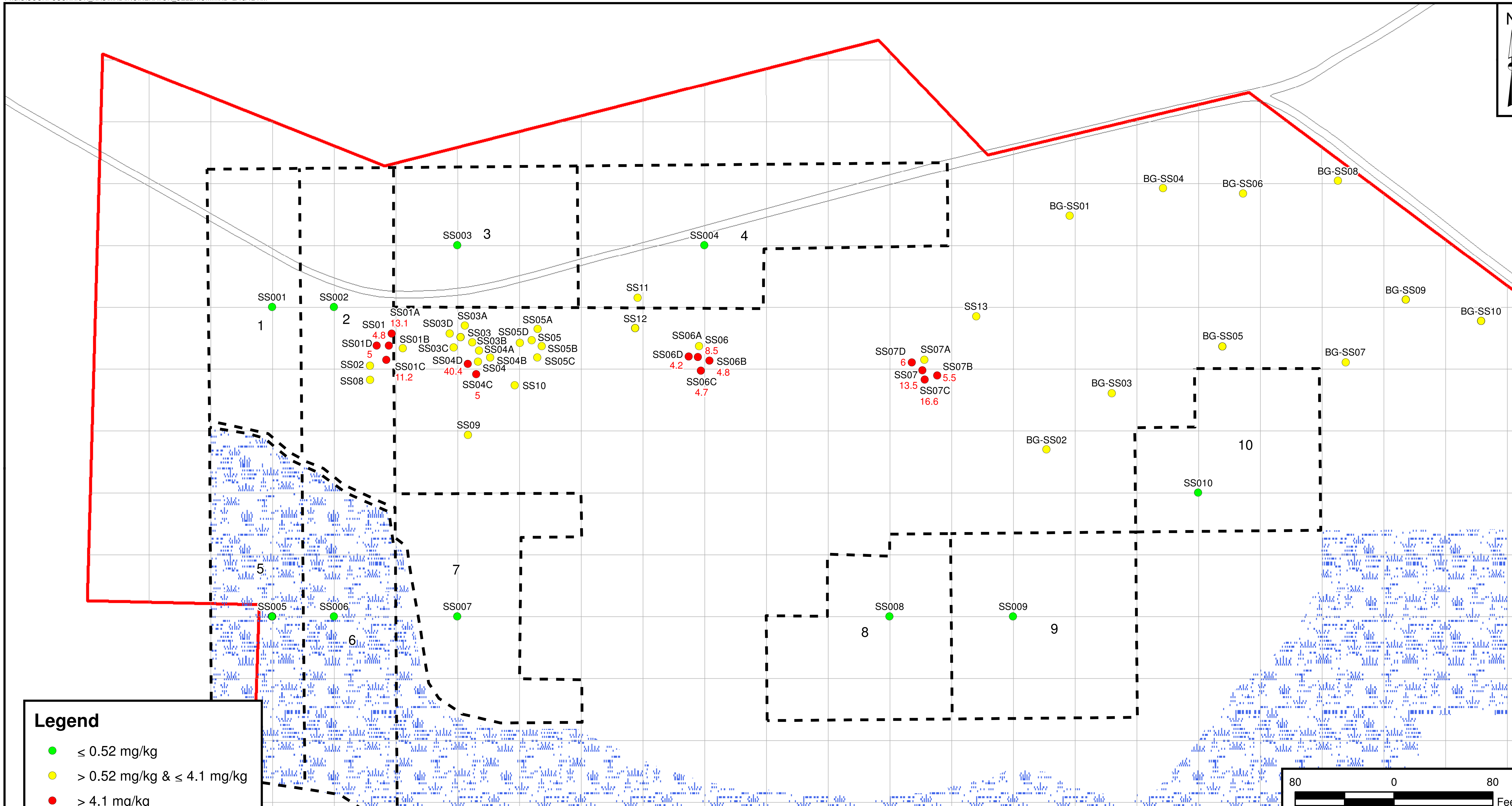
DRAWN BY	DATE
K. MOORE	1/19/12
CHECKED BY	DATE
L. GANSER	2/13/12
COST/SCHEDULE-AREA	
SCALE	
AS NOTED	

NAVFAC

NICKEL RESULTS
INCINERATOR DISPOSAL SITE
NALF CABANISS
CORPUS CHRISTI, TEXAS

CONTRACT NUMBER	
CTO 0135	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO.	REV
7-8	0

P:\GIS\COURPUSCHRISTI_NAS\MXD\INCINERATOR_SELENIUM.MXD 2/13/12 KM



Legend

- ≤ 0.52 mg/kg
- > 0.52 mg/kg & ≤ 4.1 mg/kg
- > 4.1 mg/kg
- Multi-Increment Sample Grid
- Wetlands
- Landfill/Debris Area
- Study Area

NOTES:
1. Texas-Specific Background: 0.3 mg/kg
2. Plant Screening Level: 0.52 mg/kg
   Invertebrate Screening Level: 4.1 mg/kg
3. Concentrations (presented in red) only shown if exceed Invertebrate Screening Level
4. Site-Specific Background: 4 mg/kg

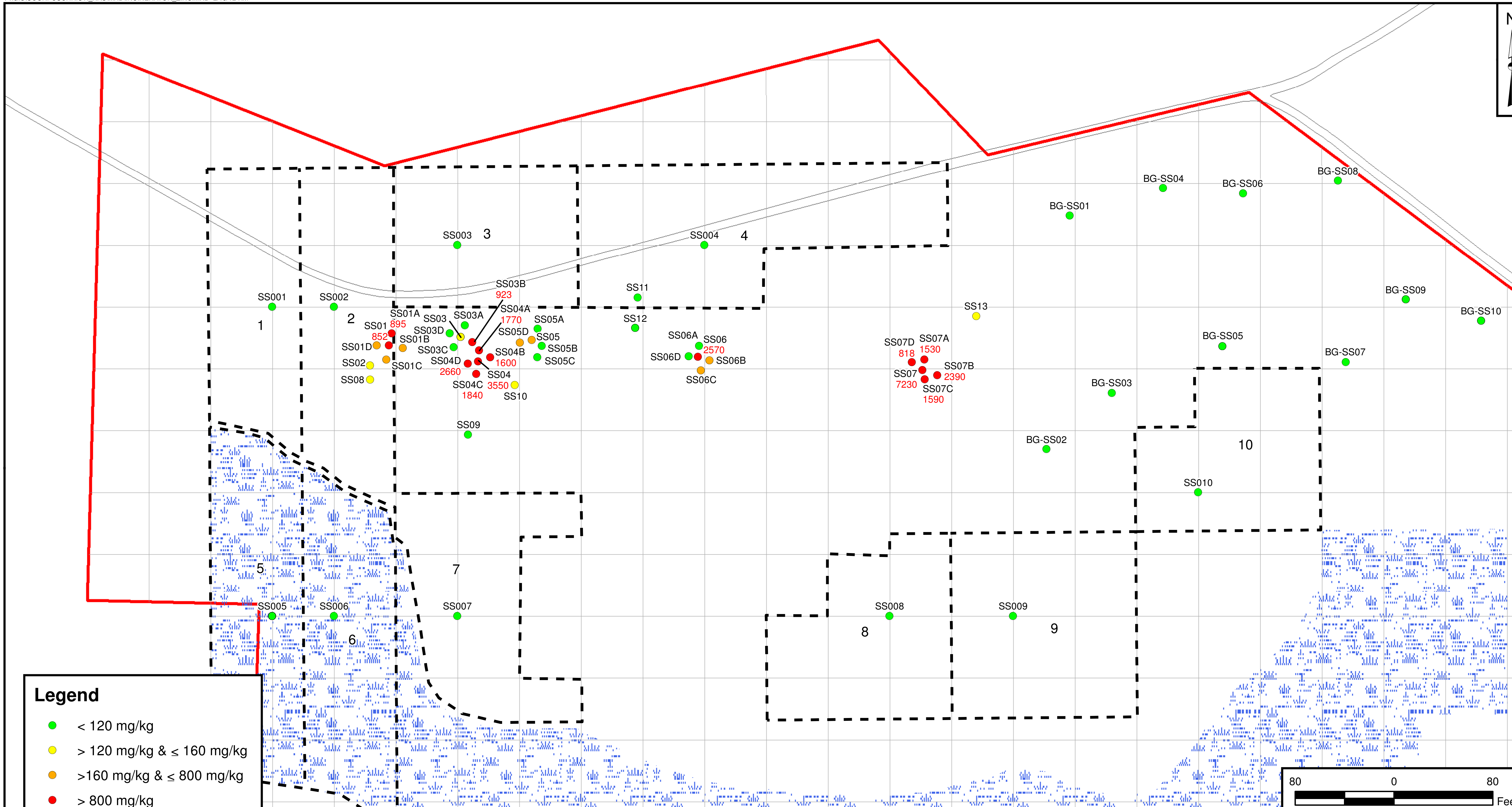
DRAWN BY	DATE
K. MOORE	1/19/12
CHECKED BY	DATE
L. GANSER	2/13/12
COST/SCHEDULE-AREA	
SCALE	
AS NOTED	

NAVFAC

SELENIUM RESULTS
INCINERATOR DISPOSAL SITE
NALF CABANISS
CORPUS CHRISTI, TEXAS

CONTRACT NUMBER	
CTO 0135	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO.	REV
7-9	0

P:\GIS\COURPUSCHRISTI_NAS\MXD\INCINERATOR_ZINC.MXD 2/13/12 KM



Legend

- < 120 mg/kg
- > 120 mg/kg & ≤ 160 mg/kg
- >160 mg/kg & ≤ 800 mg/kg
- > 800 mg/kg
- Multi-Increment Sample Grid
- Wetlands
- Landfill/Debris Area
- Study Area

NOTES:
1. Texas-Specific Background: 30 mg/kg
2. Invertebrate Screening Level: 120 mg/kg
   Plant Screening Level: 160 mg/kg
   5x Plant Screening Level: 800 mg/kg
3. Concentrations (presented in red) only shown if exceed 5x Plant Screening Level

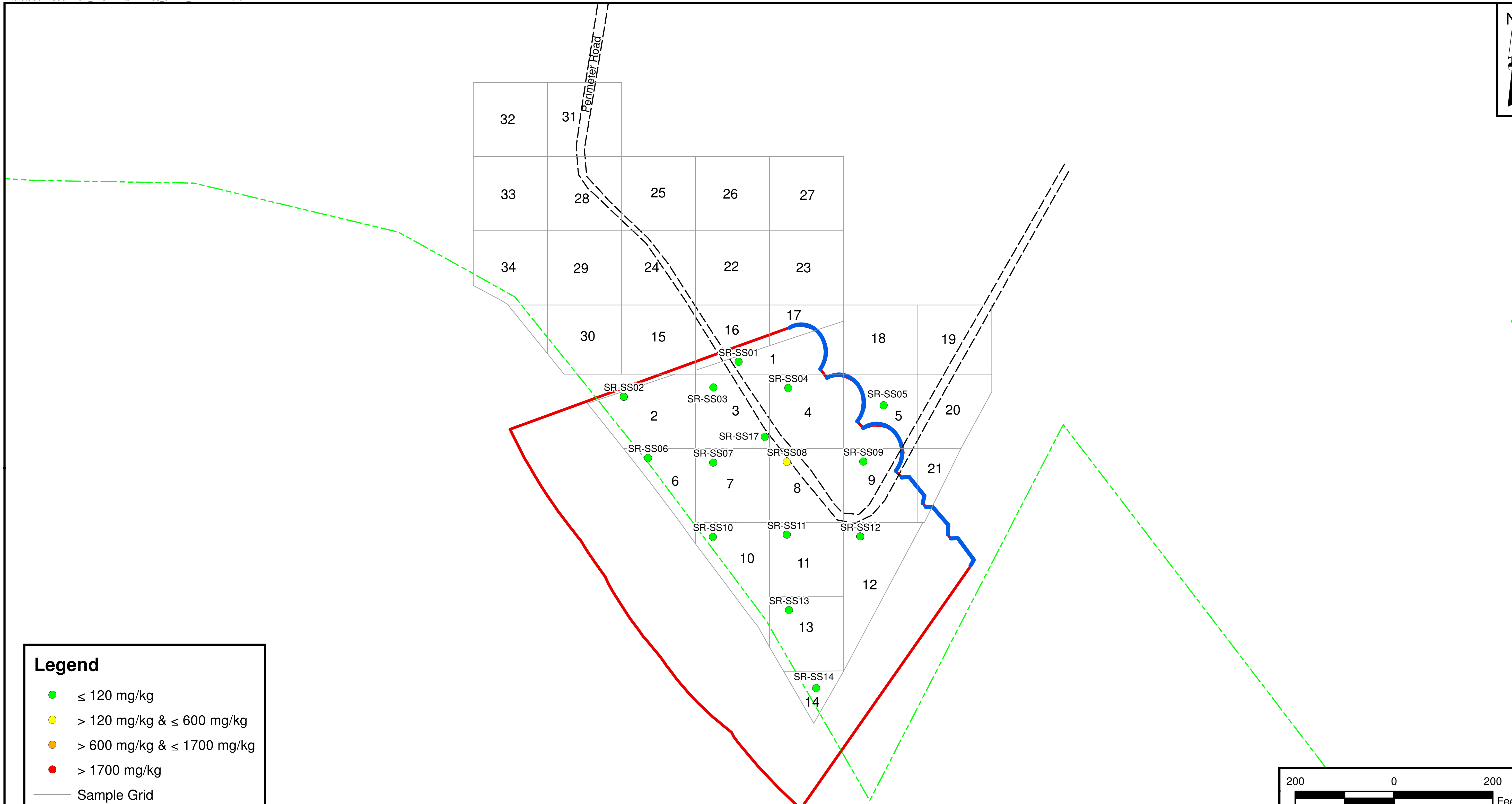
DRAWN BY K. MOORE	DATE 1/19/12
CHECKED BY L. GANSER	DATE 2/13/12
COST/SCHEDULE-AREA	
SCALE AS NOTED	

NAVFAC

ZINC RESULTS
INCINERATOR DISPOSAL SITE
NALF CABANISS
CORPUS CHRISTI, TEXAS

CONTRACT NUMBER CTO 0135	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO. 7-10	REV 0

P:\GIS\COURPUSCHRISTI_NAS\MXD\CABANISS_SKEET_LEAD.MXD 2/10/12 KM



Legend

- ≤ 120 mg/kg
- > 120 mg/kg & ≤ 600 mg/kg
- > 600 mg/kg & ≤ 1700 mg/kg
- > 1700 mg/kg
- Sample Grid
- Installation Boundary
- Road
- Firing Lines
- Skeet Range

NOTES:
1. Texas-Specific Background: 15 mg/kg
2. Plant Screening Level: 120 mg/kg
   5x Plant Screening Level: 600 mg/kg
   Invertebrate Screening Level: 1700 mg/kg

DRAWN BY	DATE	LEAD RESULTS	CONTRACT NUMBER
K. MOORE	1/19/12	SKEET RANGE SITE	CTO 0135
CHECKED BY	DATE	NALF CABANISS	APPROVED BY / DATE
L. GANSER	2/10/12	CORPUS CHRISTI, TEXAS	APPROVED BY / DATE
COST/SCHEDULE-AREA			
SCALE			FIGURE NO. 7-11
AS NOTED			REV 0

NAVFAC

8.0 UNCERTAINTY ANALYSIS

This section presents some of the general uncertainties associated with the ecological risk assessment.

8.1 UNCERTAINTY IN ASSESSMENT ENDPOINTS AND MEASURES OF EFFECT

Measurement endpoints were used to evaluate the assessment endpoints that were selected for this SERA, but the measurement endpoints were not the same as the assessment endpoints. Therefore, the measures were used to predict effects to the assessment endpoints by selecting surrogate species that were evaluated. For example, mortality of a shrew was used to assess mortality of the small mammal population. However, predicting mortality to a shrew may either under or overprotect the small mammal population, resulting from differences in ingestion rates, toxicity, food preferences, etc., between the different species.

Several endpoints were not quantitatively evaluated in the SERA. For example, risks to reptiles were not evaluated because exposure factors are not established for most species, and toxicity data are very limited. Therefore, risks to these receptors could not be determined.

8.2 UNCERTAINTY IN EXPOSURE CHARATERIZATION

The contaminant dose to terrestrial wildlife is calculated using an equation that incorporates ingestion rates, body weights, bioaccumulation factors, and other exposure factors. These exposure factors are obtained from literature studies or predicted using various equations. Ingestion rates and body weights vary between species, especially between species inhabiting different areas.

Bioaccumulation of contaminants into various biological media (e.g., plants, invertebrates) depends on the characteristics of the media such as pH, organic carbon, etc. The bioaccumulation factors that were used for the SERA were obtained from a variety of literature sources because no site-specific values are available. There are uncertainties associated with accumulation factors from the literature because they may either underpredict of overpredict tissue concentrations, depending upon how representative the factors are for site conditions. In particular, the bioavailability of the PAHs is expected to be very low at the Skeet Range because the PAHs are bound up in the clay targets.

The majority of the elevated detections to the Incinerator Disposal Site were located in the middle of the site in areas where debris or munitions were observed. Because many of the samples with elevated concentrations were not bounded by samples with lower concentrations, the extent of contamination cannot be determined. These elevated detections, however, are biasing the site-wide average concentrations high, because it is unlikely the areas with elevated detections do not extend throughout the entire middle portion of the site.

Surface water samples were not collected in Oso Creek, adjacent to the former Incinerator Disposal Site, as part of the RI, because eight surface water samples were collected in the creek as part of the Site Inspection (SI) for Incinerator Disposal Site (Tetra Tech, 2009). The SI report did not find an ecological concern from the parameters detected in the surface water samples. In addition, explosives and perchlorate were not detected in the groundwater samples collected as part of the RI, and very few detections of metals were found (see Table 4-5 in the RI report). Therefore, it is highly unlikely that aquatic receptors would be impacted by chemicals in the groundwater discharging to Oso Creek.

8.3 UNCERTAINTY IN ECOLOGICAL EFFECTS DATA

Uncertainty exists in the ecological effects data, including the screening levels and wildlife TRVs. Screening levels are typically very conservative, and are based on studies where the bioavailability of the chemical is much greater than it is in the environment. Also, toxicity data was not available or was limited for some chemicals for some of the receptors.

The NOAELs/LOAELs used for the wildlife endpoints species are based on species other than the endpoint species (e.g., rats). Uncertainty exists in the application of toxicity data across species because the contaminant may be more or less toxic to the endpoint species than it was to the test study species.

Uncertainty exists in the use of default allometric scaling factors for birds and mammals, which used in the calculation of TRVs when COPC-specific allometric scaling factors were not available for chemicals evaluated in the food chain model. Allometric scaling was not used for chemicals when the NOAELs and LOAELs were based on the geometric mean of NOAELs and LOAELS from several studies because species body weights were not available.

8.4 UNCERTAINTY IN RISK CHARATERIZATION

The potential for adverse risks exists if an EEQ is greater than 1.0 regardless of the magnitude of the EEQ. Although the relationship between the magnitude of an EEQ and toxicity is not necessarily linear, the magnitude of an EEQ can be used as a rough approximation of the extent of potential risks, especially if there is sufficient confidence in the screening level used. Uncertainty exists in how the predicted risks to a species at the site translate into risk to the population in the area as a whole.

9.0 ECOLOGICAL RISK SUMMARY AND CONCLUSIONS

The section presents a summary of the conclusions of the ecological risk assessment that was conducted for the Incinerator Disposal Site and the Skeet Range.

9.1 INCINERATOR DISPOSAL SITE

This SERA evaluated surface soil and sediment from the Incinerator Disposal Site. Based on the initial screening of the chemical data, several chemicals were initially selected as COPCs in surface soil and sediment because they were detected at concentrations that exceeded conservative screening levels and background values, had EEQs greater than 1.0 in the conservative food chain model, or did not have screening levels.

These chemicals were then further evaluated to refine the list of COPCs, and to better characterize risks to ecological receptors. The following presents the results of the SERA. Figure 9-1 depicts the exceedances.

9.1.1 Terrestrial Plants and Soil Invertebrates

Antimony, cadmium, copper, lead, manganese, selenium, and zinc were retained as COPCs for potential risks to plants. Barium, copper, manganese, selenium, and zinc were retained as COPCs for potential risks to soil invertebrates.

9.1.2 Sediment Invertebrates

No chemicals were retained as COPCs for potential risks to sediment invertebrates.

9.1.3 Mammals and Birds

Cadmium was retained for potential risks to terrestrial invertivorous birds and mammals. Although the extent of contamination has not been determined in this area, if it is determined that the samples represent relatively small areas, then risks to small mammals and birds from cadmium will be less likely.

9.2 SKEET RANGE

This SERA evaluated surface soil from the Skeet Range. Based on the initial screening of the chemical data, several chemicals were initially selected as COPCs in surface soil because they were detected at concentrations that exceeded conservative screening levels and background values, had EEQs greater than 1.0 in the conservative food chain model, or did not have screening levels.

These chemicals were then further evaluated to refine the list of COPCs, and to better characterize risks to ecological receptors. The following presents the results of the SERA.

9.2.1 Terrestrial Plants and Soil Invertebrates

No COPCs were retained for potential risks to plants and soil invertebrates.

9.2.2 Mammals and Birds

No COPCs were retained for potential risks to birds and mammals.

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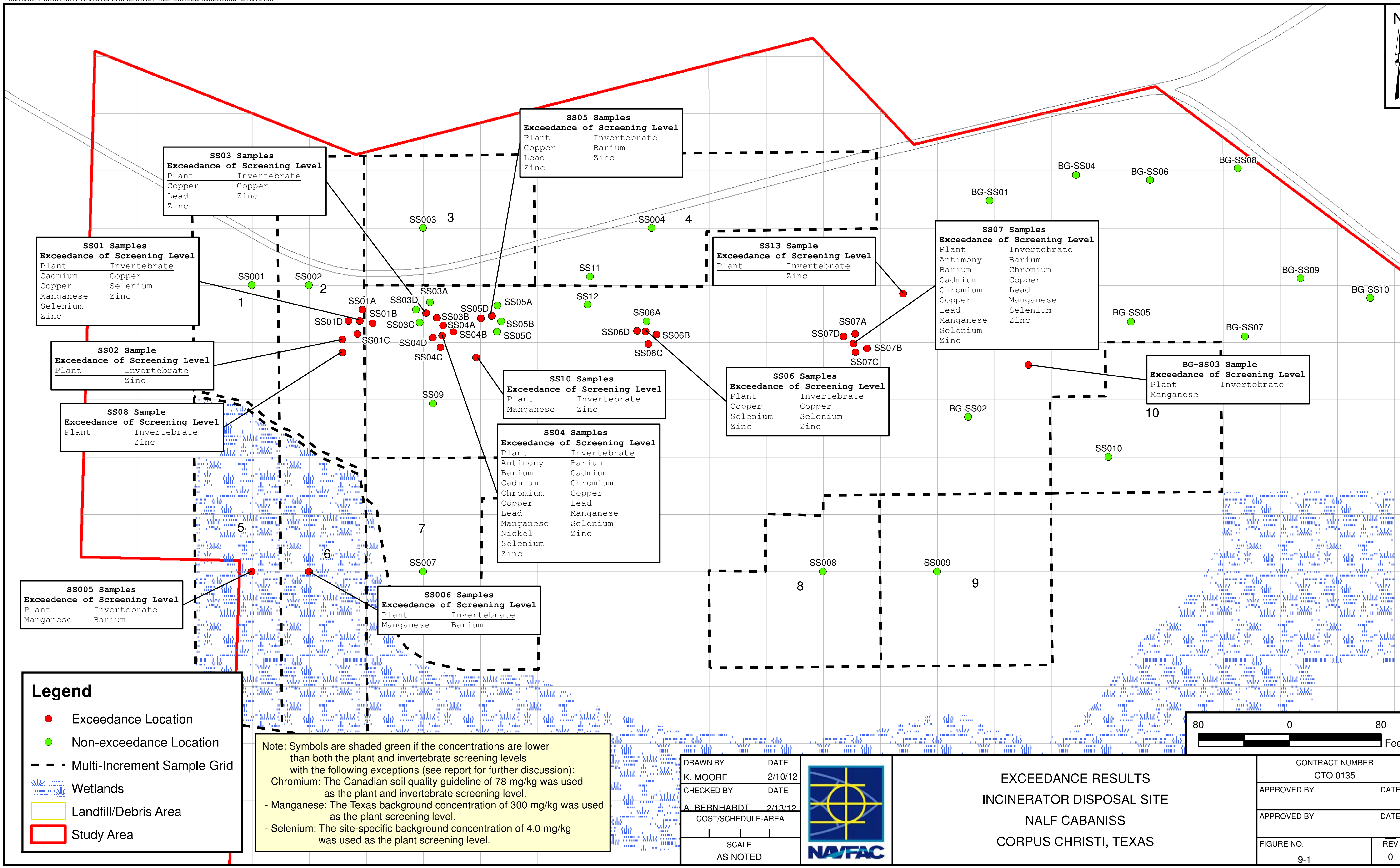

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APPENDIX A

ECOLOGICAL SURVEY REPORT

ECOLOGICAL SURVEY OF THE INCINERATOR DISPOSAL SITE AND SKEET RANGE

NAVAL AUXILIARY LANDING FIELD (NALF) CABANISS

CORPUS CHRISTI, TEXAS

1.0 Overview

The ecological survey study area (site) described in this report is approximately 24 acres in size and located on the southern section of the NALF Cabaniss, Corpus Christi, Texas. There are two areas associated with this study; the former incinerator disposal site and skeet range.

NALF Cabaniss encompasses a total of 923 acres and is located on the eastern side of Nueces County, Texas, and lies approximately eight miles west of NASCC. Figure 1 shows the general location of NALF Cabaniss. The installation is immediately bounded on the east by Brezina Road, on the north by Ayers Street and Farm-to-Market (FM) 286, to the west by Saratoga Road, and to the south by Oso Creek, a perennial water body that ultimately flows into Oso Bay. Beyond Oso Creek are agricultural and industrial properties. The area east of the installation is comprised of mixed agricultural, industrial, and residential areas. North of the current boundary are former buildings and recreational areas that were once a part of the installation. These areas were transferred to the General Services Administration (GSA) for disposal in 1958, and are now the property of the local school district. Residential zones lie beyond these buildings to the north. A former landfill is located directly west of the installation.

NALF Cabaniss is an OLF with the current primary role of supporting naval air training operations originating from NASCC. The installation was originally constructed with four 5,000-foot runways. Only two runways, oriented in north/south and northwest/southeast directions, are presently active and maintained. The airfield is lighted, to allow for night flight training, and daylight training is also conducted.

The Incinerator Disposal Site is approximately 17 acres in size and previously served as an incinerator and disposal site for spent and unused munitions. The area is bounded to the south by Oso Creek. Perimeter Road runs along the northern boundary of the site. The majority of the incinerator disposal site is covered with dense vegetation. Open marshes were present on the eastern, southern and western sections.

The former skeet range is approximately seven acres in size and located south and east along Perimeter Road from the incinerator disposal site. Perimeter Road divides the skeet range roughly in half. Oso Creek provides the southwest boundary and a narrow unnamed storm water diversion channel to Oso Creek provides the eastern boundary.

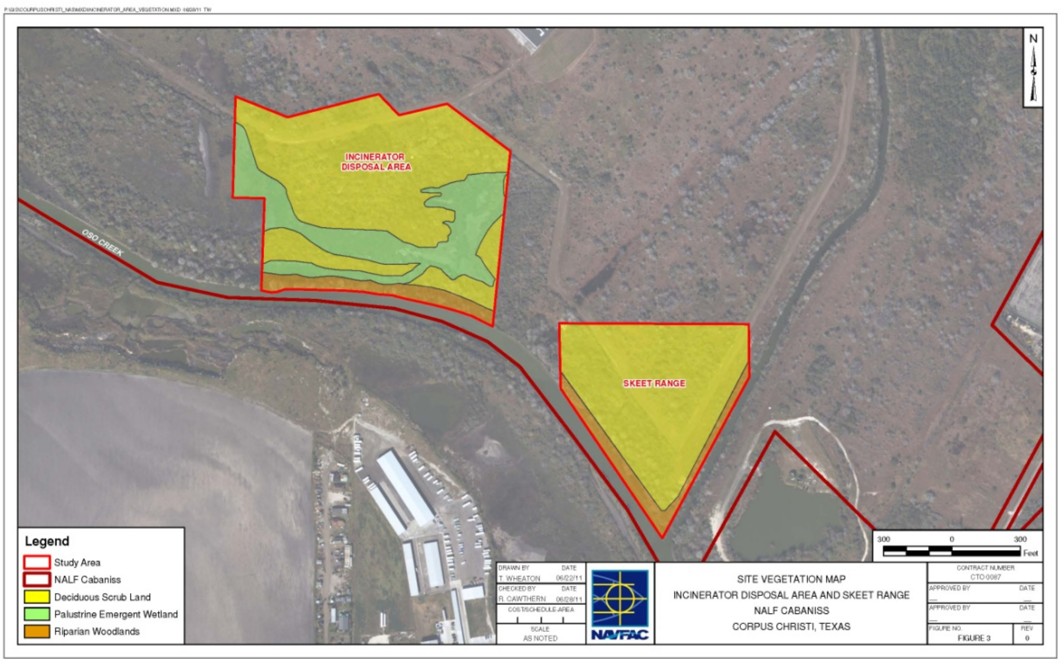
Field assessment activities were conducted on 26 and 27 April, 2011.

2.0 General Site Characteristics

Approximately 70 percent of the study area was heavily vegetated with a mix of upland woody shrubs and small trees typical of early to mid successional woodlands in the southern plains. An open, emergent marsh occupied approximately 20% of the eastern and southern sections of the site. The remaining land consisted of a riparian woodland present along Oso Creek and the stormwater diversion channel that flowed along the eastern edge of the skeet range.

The site had a nearly level to slightly sloping terrain with the gradient decreasing generally north to south. Runoff followed the natural contour of the land and drained into Oso Creek. The site is underlain with a clayey soil material derived from deltaic and marine sediments that is slowly permeable. Figure 2 provides a generalized depiction of the relative size and locations location of the primary vegetative communities present at the site.

Figure 2 – Site Vegetation Map



3.0 Vegetation

Three primary types of vegetative cover were observed within the survey area. The majority of the site is vegetated with a deciduous scrub upland indigenous to Texas. The area adjacent to Oso Creek and the small unnamed tributary consisted of a narrow area of riparian woodlands while the remainder of the site consists of a persistent emergent wetlands. A complete list of vegetation observed during the site visit is included in Appendix A.

3.1 Deciduous Scrub Land

A deciduous scrub habitat covered the majority of the study areas. These areas consisted primarily of honey mesquite (*Prosopis glandulosa),* saffron plum (*Sideroxylon celastrinum)* and guajillo (*Acacia berlandieri)*. Also present were sweet acacia (*Acacia farnesiana)*, retama (*Parkinsonia aculeate)*, algerita (*Mahonia trifoliolata*)*,* elbowbush (*Forestiera angustifolia*) and sugar hackberry (*Celtis laevigata)*. The ground surface across the more open sections was vegetated with a variety of native and non-native grasses and prickly pear (*Opuntia engelmannii)*.

The dense brush creates a suitable cover area for a number of avian species and animal. Commonly observed species included white-eyed vireo, northern cardinal, catbird and white-winged dove and northern mockingbird. The plant species present also provide food sources in the form of fruits and seeds that are eaten by avian and mammal species. The bean of the mesquite provides the greater part of the coyote's summer food as well as food for other mammals including skunk, raccoon and cottontail rabbit. The flowers of the various woody plants provide an important nectar source for butterflies and bees.

Upland scrub growth on incinerator site

Upland scrub growth on incinerator site

Upland scrub growth on skeet range

3.2 Riparian Woodlands

A narrow riparian woodland was present along the edges of Oso Creek and the storm water conveyance channel. These areas consisted of deciduous tree species common along streams included Mexican ash (*Fraxinus berlandieriana),* sugar hackberry and black willow (*Salix nigra).* Guajillo and retama were the primary understory components.

Riparian areas are important travel corridors for some species, and are frequently used as stopover points for migratory birds. The diversity of plant species present along riparian corridors provides shelter and food for birds, mammals, reptiles and upland habitat for many amphibians. Burrowing animals are frequently found in these areas because of the friable nature of alluvial soils. The tree canopy also shades the water and provides a cooling influence which can be beneficial to aquatic habitats. Riparian vegetation also provides a good measure of bank stabilization through its root network.

Riparian woodland along Oso Creek

3.3 Emergent Wetlands

Emergent wetlands are characterized by a dominance of persistent, herbaceous plants. All of the wetlands identified on the study area were located on the incinerator disposal site. These were located in the eastern section, extended narrowly across the southern section and broadened out to the west. The elevated salinity of the soils has resulted in the development of a halophytic vegetative community. The dominated species were Gulf cord grass (*Spartina spartinae),* sea oxeye (*Borrichia frutiscens)* and sturdy bulrush (*Schoenoplectus robustus)*. The low permeability of the soils tends to perch surface water and allows for the establishment of the wetland plant community. Because of their open nature, marsh areas provide an excellent hunting ground for insectivorous birds and birds of prey.

Emergent wetland on western section of incinerator disposal area

Emergent wetland on southern section of incinerator disposal area

The seeds of the bulrush provide an important food source for ducks, songbirds and small mammals. The gulf cordgrass provides good cover and nesting habitat for birds and mammals. These areas were dominated with swamp sparrow, vespid sparrow, Lincoln's sparrow, northern harrier, barn swallow. The burrows of small mammals and crayfish were also noted.

4.0 Oso Creek

Oso Creek is a perennial, freshwater stream channel that flows approximately 28 miles through Nueces County and empties into Oso Bay. The study area is located approximately 10 mile upstream of Oso Bay just below the upper extent of tidal influence. The main stem of the stream flows mainly through agricultural land. The channel receives a significant portion of its flow through effluent discharges upstream of the study area. The channel was typically sixty to seventy feet in width along the boundary of the incinerator site and flowed to the east.

Oso Creek on south side of project area

The creek provides habitat for a number of freshwater fish species and food and water source for birds and mammals. Noted during the site evaluation were little blue heron, green heron, barn swallows and black-bellied whistling duck. Deer and raccoon tracks were noted along the banks of the creek.

A storm water diversion channel is located along the eastern edge of the study area. This feature flows in a southerly direction and empties into Oso Creek. The waterway originates in south Corpus Christi and was constructed as part of the City of Corpus Christi's Oso Creek storm water drainage plan.

Stormwater conveyance channel on east side of the skeet range near confluence with Oso Creek

The majority of this waterway flows through residential and agricultural settings and has very limited aquatic habitat due to impacts from non-point runoff pollutants.

5.0 Wildlife

Mammals

The dense nature of the vegetation on the site provides excellent cover for large and small mammals. Only one mammal was sighted during the site evaluation. White-tailed deer (*Odocoileus virginianus)* were spotted browsing along the edge of Perimeter Road. Various sets of animal tracks were identified along the stream banks and in the muddy flats across the site. Among these were coyote (*Canis latrans),* raccoon (*Procyon lotor),* and cottontail (*Sylvilagus sp.)* along with other smaller rodent species.

Birds

The dense cover offered by the site and its position adjacent to Oso Creek provides habitat for a variety of bird species. Additional habitat is offered by the open marsh on the western section of the site. The list of birds compiled in Appendix B includes those species actually sighted and those identified by voice.

Invertebrates

The abundance of flowering vegetation on the site provides a valuable food source for a variety of insect types. Butterflies and bees were in abundance during the site evaluation. The woody plant species present are also host plants for several butterfly species. The hazardous nature of the site prevented the opportunity for a soil examination for invertebrates. Crayfish burrows were evident in the wetlands on the site.

Reptiles and Amphibians

The state of Texas has more species of herpetofauna that any other state. Reasons for this distinction include the wide diversity of habitat types, its proximity to Mexico and the neotropical climate that is present across the far southern section.

Only two species were actually encountered during the site evaluation; the green anoli (*Anolis carolinensis)* and rough green snake (*Opheodrys aestivus).* Also an unidentified tree frog was heard near Oso Creek.

APPENDIX A

Plant List for Incinerator Disposal Site and Skeet Range

Mesquite Scrub Upland

Honey mesquite	*Prosopis glandulosa*
Guajillo	*Acacia berlandiera*
Saffron plum	*Sideroxylon celastrinum*
Elbowbush	*Forestiera angustifolia*
Sweet acacia	*Acacia farnesiana*
Sugar hackberry	*Celtis laevigata*
Retama	*Parkinsonia aculeata*
Algerita	*Mahonia trifoliolata*
Texas persimmon	*Diospyros texana*
Johnson grass	*Sorghum halepense*
Purple threeawn	*Aristida purpurea*

Riparian Woodland

Mexican ash	*Fraxinus berlandieriana*
Sugar hackberry	*Celtis laevigata*
Black willow	*Salix nigra*
Guajillo	*Acacia berlandiera*
Retama	*Parkinsonia aculeata*
Johnson grass	*Sorghum halepense*

Salt Marsh

Gulf corgrass	*Spartina spartinae*
Sturdy bulrush	*Schoenoplectus robustus*
Sea oxeye	*Borrichia frutescens*

APPENDIX B

Bird List for Incinerator Disposal Site and Skeet Range

Green heron	*Butorides striatus*
Northern harrier	*Circus cyaneus*
Mourning dove	*Zenaida macruoura*
White-winged dove	*Zenaida asiatica*
Lesser nighthawk	*Chordeiles acutipennis*
Unidentified poor will	*Caprimulgus sp.*
Eastern phoebe	*Contopus virens*
Great crested kingbird	*Myiarchus crinitus*
Barn swallow	*Hirundo rustica*
Carolina wren	*Thryothorus ludovicianus*
Bewick's wren	*Thryomanes bewickii*
Long-billed thrasher	*Toxostoma longirostre*
Northern mockingbird	*Mimus polyglottos*
White-eyed vireo	*Vireo griseus*
Bell's vireo	*Vireo bellii*
Magnolia warbler	*Dendrioca magnolia*
Tennessee warbler	*Vermavora peregrine*
Chestnut-sided warbler	*Dendroica pensylvanica*
Brown-headed cowbird	*Molothrus ater*
Northern cardinal	*Cardinalis cardinalis*
Vesper sparrow	*Pooecetes gramineus*
Lincoln's sparrow	*Milospiza lincolnii*
Swamp sparrow	*Melospiza Georgiana*

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APPENDIX B

SUPPORTING INFORMATION

The following sections present the receptor profiles for the representative herbivorous and invertivorous receptors chosen for food chain modeling at NALF Cabaniss, Corpus Christi, Texas. Food and incidental soil/sediment ingestion rates were calculated for each receptor. The feeding rates for each receptor were based on the intake equation and parameters from Nagy (1987). The food ingestion rate was calculated by subtracting the incidental soil/sediment ingestion rate from the feeding rate as shown in Table 3-2.

The ingestion rates are listed in gram per day on a dry weight basis. Also note that the estimated percent of soil/sediment in the diets are listed in dry weight. The home ranges are presented in hectares in U.S. EPA (1993) but were converted to acres by multiplying the number of hectares by 2.471.

Short-Tailed Shrew (*Blarina brevicauda*)

Shrews inhabit a wide variety of habitats and are common in areas with abundant vegetative cover (USEPA, 1993). They need cool, moist habitats because of their high metabolic and water-loss rates. The short-tailed shrew is primarily carnivorous, eating insects and other invertebrates such as earthworms, slugs, and snails.

The body weight of a short-tailed shrew was reported as 15 grams (USEPA, 1999). The incidental soil ingestion rate of 3%, which is the 90^{th} percentile value, was used for the conservative food chain model and 0.9%, which is the 50^{th} percentile value, was used for the average food chain model (USEPA, 2007). The only available home range for the shrew (0. 96 acres) was calculated using data from a tamarack bog in Manitoba (only value available; USEPA, 1993).

White-Footed Mouse *(Peromyscus leucopus)*

White-footed mice are found in woodlands, prairies and semi-desert regions (USEPA, 1993). They are considered omnivores and feed on seeds, vegetation, and small invertebrates.

The body weight for a white-footed mouse of 19 grams was based on the average of seven mean body weights reported for the deer mouse ranging from 14.8 to 22.3 grams (USEPA, 1993). The incidental soil ingestion rates were based on the meadow vole (USEPA, 2007). The incidental soil rates used in the conservative and average food chain models were 3.2% and 1.2%, respectively, based on the 90^{th} percentile and 50^{th} percentile values. The home range for the white-footed mouse was not available; however, the home range for a deer mouse ranges from 0.035 to 0.32 acres (USEPA, 1993).

American Robin (*Turdus migratorius*)

American robins' habitats include parks, lawns, moist forests, swamps, open woodlands, and orchards (USEPA, 1993). Robins forage on the ground in open areas, along habitat edges, or the edges of streams. They also may forage above ground in shrubs and within the lower branches of trees. In the months preceding and during the breeding season, robins feed primarily on invertebrates and on some fruits. During the rest of the year their diet consists primarily of fruits.

The body weight for an American robin was reported as 80 grams (USEPA, 1999). The incidental soil ingestion rates were based on the American woodcock (USEPA, 2007). The incidental soil rates used in the conservative and average food chain models were 16.4% and 6.4%, respectively, based on the 90th percentile and 50th percentile values. The home range for the robin was calculated using data from Tennessee and a New York dense conifer forest. The values ranged from 0.27 to 1.04 acres with an average home range of 0.6095 acres (USEPA, 1993).

Spotted Sandpiper *(Actitis macularia)*

Spotted sandpipers are found in freshwater and saltwater bodies throughout the United States during summer months (USEPA, 1993). They require open water for bathing and drinking, semi-open habitat for nesting, and dense vegetation for breeding. Sandpipers forage on sandy beaches and mudflats and their diets consists of small invertebrates.

The body weight for a Spotted sandpiper was reported as 40 grams (USEPA, 1999). The incidental soil ingestion rates were based on the Western sandpiper (Beyer, et al., 1994). The incidental soil rate used in the food chain models was 18%. The home range for the sandpiper is approximately 0.62 acres.

Mourning Dove *(Zenaida macroura)*

Mourning doves are found in woodland-grassland edge, prairies, and open forests (Tesky, 1993). They feed on feed seeds from grasses, weeds, and cultivated grains.

The body weight for a Mourning dove was reported as 150 grams (USEPA, 1999). The incidental soil rates used in the conservative and average food chain models were 13.9% and 6.1%, respectively, based on the 90th percentile and 50th percentile values (USEPA, 2007). One source reported the home range for the mourning dove as no more than 4 square miles (equivalent to 2560 acres) (Tomlinson et al.,1960).

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This attachment presents the bioaccumulation factors (BAFs) that were used in the food chain models. The following sources of BAFs were used in the ecological risk assessment for most of the chemicals:

- Plant and Soil Invertebrate BAFs: EPA Guidance for Developing Ecological Soil Screening Levels, Attachment 4-1 (USEPA, 2007).

- Plant BAFs (metals): Empirical Model for the Uptake of Inorganic Chemicals from Soil by Plants (ORNL, 1998a).

- Soil Invertebrate BAFs: Development and Validation of Bioaccumulation Models for Earthworms (Sample et al., 1998).

- Sediment Invertebrate BSAFs: Biota Sediment Accumulation Factors for Invertebrates (ORNL, 1998b).

Table 3 (in the primary portion of the ecological risk assessment) presents the BAFs/BSAFs (biota-sediment accumulation factor) that were used in the food-chain models for the individual constituents that were detected at NALF Cabaniss. Note that dry weight BAFs were used for this ERA. A default value of 1.0 was used for the BAF/BSAF if chemical-specific data were not available.

The EPA Guidance for Developing Ecological Soil Screening Levels (Eco SSLs) was the source of the BAFs for some of the chemicals. The majority of these BAFs are actually regression or BAF equations that are used to calculate the tissue concentration from the soil concentration.

BSAFs from ORNL (1998b) for sediment invertebrates were used to estimate tissue concentrations of metals in food items of piscivorous birds and mammals.

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APPENDIX B - TABLE 1

NOAELS AND LOAELS FOR TERRESTRIAL WILDLIFE
INCINERATOR DISPOSAL SITE AND SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Parameters	Concentration (mg/kg-day)	Endpoint	Effect	Chronic/ Subchronic	Species	Body Weight (grams)[1]	Primary Reference	Source of Reference
PAHs								
High Molecular Weight PAHs	38.4	LOAEL	reproduction & growth	chronic	mammals		USEPA, 2007	
High Molecular Weight PAHs	0.615	NOAEL	reproduction & growth	chronic	mouse	37	Culp et al., 1998	USEPA, 2007
7,12-Dimethylbenz(a)anthracene	20	LOAEL	systemic	chronic	nestling/starlings	0.055	Trust et al., 1994	
7,12-Dimethylbenz(a)anthracene	2	NOAEL	systemic	chronic	nestling/starlings	0.055	Trust et al., 1994	
Inorganics								
Cadmium	6.35	LOAEL	reproduction & growth	chronic	birds		USEPA, 2005	
Cadmium	6.9	LOAEL	reproduction & growth	chronic	mammals		USEPA, 2005	
Cadmium	1.47	NOAEL	reproduction & growth	chronic	birds		USEPA, 2005	
Cadmium	0.77	NOAEL	reproduction & growth	chronic	rat	430	USEPA, 2005	
Chromium(III)	15.63	LOAEL	reproduction & growth	chronic	birds		USEPA, 2008	
Chromium(III)	58.17	LOAEL	reproduction & growth	chronic	mammals		USEPA, 2008	
Chromium(III)	2.66	NOAEL	reproduction & growth	chronic	birds		USEPA, 2008	
Chromium(III)	2.4	NOAEL	reproduction & growth	chronic	mammals		USEPA, 2008	
Copper	34.87	LOAEL	reproduction & growth	chronic	birds		USEPA, 2007	
Copper	82.7	LOAEL	reproduction & growth	chronic	mammals		USEPA, 2007	
Copper	4.05	NOAEL	reproduction & growth	chronic	chicken	1516	USEPA, 2007	
Copper	5.6	NOAEL	reproduction & growth	chronic	pig	100000	USEPA, 2007	
Lead	44.6	LOAEL	reproduction & growth	chronic	birds		USEPA, 2005	
Lead	186.4	LOAEL	reproduction & growth	chronic	mammals		USEPA, 2005	
Lead	1.63	NOAEL	reproduction & growth	chronic	chicken	1810	USEPA, 2005	
Lead	4.7	NOAEL	reproduction & growth	chronic	rat	300	USEPA, 2005	
Mercury	0.064	LOAEL	reproductive	chronic	mallard duck	1000	Heinz, 1979	Sample et.al., 1996
Mercury	0.16	LOAEL	reproductive	chronic	rat	350	Verschuuren et al., 1976	Sample et.al., 1996
Mercury	0.032	NOAEL	reproductive	chronic	rat	350	Verschuuren et al., 1976	Sample et.al., 1996
Nickel	18.57	LOAEL	reproduction & growth	chronic	birds		USEPA, 2007	
Nickel	14.77	LOAEL	reproduction & growth	chronic	mammals		USEPA, 2007	
Nickel	6.71	NOAEL	reproduction & growth	chronic	birds		USEPA, 2007	
Nickel	1.7	NOAEL	reproduction & growth	chronic	mouse	25	USEPA, 2007	
Selenium	0.819	LOAEL	reproduction & growth	chronic	birds		USEPA, 2007	
Selenium	0.661	LOAEL	reproduction & growth	chronic	mammals		USEPA, 2007	

APPENDIX B - TABLE 1

NOAELS AND LOAELS FOR TERRESTRIAL WILDLIFE
INCINERATOR DISPOSAL SITE AND SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Parameters	Concentration (mg/kg-day)	Endpoint	Effect	Chronic/ Subchronic	Species	Body Weight (grams)(1)	Primary Reference	Source of Reference
Selenium	0.29	NOAEL	reproduction & growth	chronic	chicken	328	USEPA, 2007	
Selenium	0.143	NOAEL	reproduction & growth	chronic	pig	17800	USEPA, 2007	
Zinc	297.58	LOAEL	reproduction & growth	chronic	mammals		USEPA, 2007	
Zinc	171.44	LOAEL	reproduction & growth	chronic	birds		USEPA, 2007	
Zinc	75.4	NOAEL	reproduction & growth	chronic	mammals		USEPA, 2007	
Zinc	66.1	NOAEL	reproduction & growth	chronic	birds		USEPA, 2007	

Notes:
NOAEL = No Observed Adverse Effects Level
LOAEL = Lowest Observed Adverse Effects Level
* Value has been adjusted for chronic effects.
The NOAELS and LOAELS for the following PAHs are based on the High Molecular Weight PAH values: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, dibenzofuran, indeno(1,2,3-c,d)pyrene, and pyrene.
The NOAELS and LOAELS for the PAHs for birds were based on 7,12-dimethylbenz(a)anthracene.
1 - Body weights are cited from the study, unless otherwise noted. If mammal or birds are listed as species then the NOAELs and LOAELs are based on a geometric mean of various studies and species. Therefore, a body weight cannot be determined.

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INCINERATOR DISPOSAL SITE AND SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

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APPENDIX B - TABLE 2

CALCULATION OF NOAELs AND LOAELs FROM ECO SSLs
INCINERATOR DISPOSAL SITE AND SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

	Chromium (+3)			
	Mammal		Bird	
	NOAEL	LOAEL	NOAEL	LOAEL
	0.00663	9.62	0.238	2.78
	0.00933	36.2	0.483	75.4
	0.537	91.1	0.494	9.91
	0.595	228	0.569	28.7
	0.927	92.1	0.744	
	8.09		0.988	
	44.6		37.7	
	228		0.483	
	1770		1.45	
			6.42	
			85.9	
			359	
Geomean	**2.40**	**58.17**	**2.66**	**15.63**
Value used in Eco SSL	**2.4**	**NA**	**2.66**	**NA**

	Nickel			
	Bird		Mammal	
	NOAEL	LOAEL	NOAEL	LOAEL
	149	8.16	1.1	3.31
	0.136	11.5	1.35	2.71
	0.195	17.9	1.7	3.4
	5.76	30.2	9.3	171
	8.95	31.5	45.3	327
	22.9	8.95	85.3	0.551
	28.3	10.7	90.6	0.797
	31	23.9	112	1.33
		71.8	164	1.35
			205	1.59
			0.0844	4.7
			0.101	25
			0.335	6.8
			1.17	22
			1.33	6.55
			1.36	14.6
			1.47	91.1
			1.64	47.4
			2.97	23.4
			4.56	309
			4.56	112
			5.44	171
			5.89	148
			6.75	2.81
			7	8.2
			7.78	24.7
			9.11	208
			9.3	
			9.49	
			11.4	
			11.7	
			12.5	
			20	
			29.4	
			45	
			45.3	
			85.3	
			107	
Geomean	**6.71**	**18.57**	**7.70**	**14.77**
Value used in Eco SSL	**6.71**	**NA**	**1.7**	**NA**

CALCULATION OF NOAELs AND LOAELs FROM ECO SSLs
INCINERATOR DISPOSAL SITE AND SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

	PAHs (High Molecular Weight)			
	Bird		Mammal	
	NOAEL	LOAEL	NOAEL	LOAEL
	No Data	No Data	10	40
			13.3	26.4
			3.09	45.9
			5	12.4
			10	50
			11.8	24
			13.3	26.4
			21.1	63.4
			28.5	98
			31.7	118
			49	20.7
			53.9	27.3
			125	50
Geomean			**18.0**	**38.4**
Value used in Eco SSL			**0.615**	

CALCULATION OF NOAELs AND LOAELs FROM ECO SSLs
INCINERATOR DISPOSAL SITE AND SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Cadmium			
Mammal		Bird	
NOAEL	LOAEL	NOAEL	LOAEL
0.0069	15.6	0.593	2.37
0.0939	4.88	0.593	2.37
0.651	10	0.799	2.4
0.89	10	1.53	21.1
1	2.28	1.53	21.1
1	4.5	4.2	2.4
1.14	40	0.125	3.71
1.57	54	0.26	7.65
2.53	10	0.708	10.4
4.0	18.4	0.83	7.08
4	75	0.858	3.3
5.4	0.661	1.25	4.66
6	1.42	1.55	3.44
6.13	1.45	1.72	3.44
6.44	1.87	1.72	37.6
7.41	2.14	4.2	1.05
11.4	3.93	4.24	4.26
12.5	4.61	5.76	4.8
13.9	5.59	6.44	4.9
25	5.82	12.5	5.63
41.1	6.3		9.57
50	7.28		9.75
50	236		12.2
0.0069	1		12.8
0.00792	1		13
0.00884	1.6		13.8
0.0187	1.3		14.7
0.0584	4		
0.0793	0.909		
0.1	1.2		
0.1	1.6		
0.179	7.7		
0.207	10		
0.268	5.2		
0.323	10.8		
0.4	6.13		
0.448	10.6		
0.478	10		
0.579	15.4		
0.581	12.1		
0.593	8.71		
0.645	44.4		
0.77	54		
0.89	15.2		
0.89	17.1		
1	85.9		
1.04	100		
1.08	0.0744		
1.36	0.143		
1.78	1		
1.84	1.97		
1.85	3.01		
2.22	3.21		
2.53	3.43		
2.65	3.88		
2.78	4.06		
3	4.58		
3.08	5.08		
3.73	5.18		
4.05	5.44		
4.36	5.74		
4.44	5.82		
4.97	6.13		
4.99	6.89		
5.4	9.54		

Copper			
Mammal		Bird	
NOAEL	LOAEL	NOAEL	LOAEL
3.4	6.79	4.05	12.1
6.51	136	13.9	19.5
50.7	136	15.6	23.3
90.9	5.51	16.7	34
90.9	41.2	17	25.5
107	9.34	18	28
304	19.6	19.4	29
358	26.9	20.5	30.7
48300	27.6	21.6	44.8
0.812	51.6	22.4	45
0.852	45.7	22.5	29.9
1.33	101	23.2	54.4
1.48	99.6	23.9	40.6
2.07	64	27.2	47.5
3.6	165	27.5	40.1
4.25	183	29.1	50
4.37	293	30.4	318
5.43	358	33.4	19.7
5.51	400	35.2	22.6
5.6	988	40	536
5.89	1740	43.3	4.68
6.67	3400	239	7.67
6.9	4670	1.92	46.6
7.19	47500	2.34	42.9
7.34	1.47	2.7	42.9
7.36	3	2.75	19
7.37	5.78	2.97	51.6
7.63	7.46	3.83	24.3
7.66	15.5	4.15	26.60
7.68	23.5	4.43	28.7
7.72	39.8	4.65	28.7
7.84	39.8	4.75	28.7
8.08	106	5.43	28.7
8.21	122	5.56	28.7
8.29	274	5.82	25.8
8.43	285	6.28	24.7
8.44		7.55	33.4
8.5		7.63	25.8
8.68		8.19	31.1
9.6		8.4	35.5
9.93		8.59	28
10.2		8.59	37.1
10.3		9.52	30.5
12		9.72	30.7
12.4		10.2	42.7
12.7		11.1	42.9
13.8		11.5	34
16.2		11.9	44.8
16.4		12.2	34.1
16.5		12.6	30.7
16.7		13.3	29.9
17.2		13.4	31
17.5		14.2	35.2
17.8		14.2	40.4
22.9		14.3	35.3
27.7		14.3	57.4
28.4		14.3	59.3
33.4		14.3	43.3
33.8		14.3	51.9
37.1		14.3	63.9
43.1		14.3	74.2
45.8		14.3	55.9
49.8		15.7	109
50		16.5	120
59		16.7	2.69

CALCULATION OF NOAELs AND LOAELs FROM ECO SSLs
INCINERATOR DISPOSAL SITE AND SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

	Cadmium			
	Mammal		Bird	
	NOAEL	LOAEL	NOAEL	LOAEL
	5.54	9.7		
	6.06	10		
	7.23	10.4		
	7.38	13.2		
	8.53	14.7		
	8.54	16.8		
	8.61	20.7		
	10.5	75.8		
	11.8	103		
	12.5	571		
	12.5			
	12.6			
	16.9			
	21.3			
	31.3			
	43			
	50			
Geomean	**1.86**	**6.90**	**1.47**	**6.35**
Value used in Eco SSL	**0.77**		**1.47**	

	Copper			
	Mammal		Bird	
	NOAEL	LOAEL	NOAEL	LOAEL
	73.4		17.2	4.88
	75.7		17.5	10.3
	82.5		17.8	14.3
	91.7		17.8	17.5
	146		18	21.3
	179		18.2	22.6
	229		18.3	22.7
	259		18.3	26.4
	494		18.4	26.4
	690		18.5	28.7
	812		18.6	31.4
	1430		19.6	34.9
	2110		19.7	35.2
	19500		20.5	35.5
			20.9	35.5
			21.3	42.9
			21.5	50.1
			21.5	55.2
			21.6	57.2
			21.7	59
			21.9	60
			22.4	75.5
			22.7	85.9
			23	92.9
			23.2	138
			23.3	
			23.9	
			24.7	
			26.4	
			26.6	
			26.9	
			27.9	
			28.4	
			28.7	
			28.7	
			29.5	
			29.7	
			30.4	
			30.7	
			33	
			34.1	
			34.6	
			35.2	
			35.5	
			35.5	
			36.3	
			36.6	
			37.1	
			40.1	
			41	
			43.3	
			49.5	
			50	
			50.1	
			50.9	
			56.8	
			60	
			65.4	
			82	
			103	
			143	
Geomean	**24.96**	**82.70**	**18.49**	**34.87**
Value used in Eco SSL	**5.6**	**NA**	**4.05**	**NA**

CALCULATION OF NOAELs AND LOAELs FROM ECO SSLs
INCINERATOR DISPOSAL SITE AND SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Lead			
Bird		Mammal	
NOAEL	LOAEL	NOAEL	LOAEL
0.194	1.94	0.71	7
1.63	3.26	1	5
2.69	4.04	2.6	26
5.63	126	3	6
12	135	4.5	10
12.6	0.11	5	74.9
67.4	0.194	5.5	45
125	3.26	7.5	170
1.56	11.8	8.9	180
2.77	93.1	9.1	63.2
4.64	377	12.4	111
5.93	15.6	18	54.6
6.14	59.3	25.4	82
7.1	61.4	27.5	285
11.1	71	31.6	270
11.2	111	32.5	150
12.6	112	33.3	1440
13.5	126	41	506
14.2	67.4	47.3	506
20	125	56	552
25	123	64.8	587
28.4	38.2	64.9	1500
34.5	53.1	90.1	2
54.3	64.3	100	2.49
61.3	76.3	115	2.94
66.9	124	116	3.62
	152	120	5.5
	163	144	6.76
	200	202	16.6
	262	202	46.4
	270	276	49.6
	273	294	50
	282	441	55.5
		600	61.2
		601	78.6
		639	99.8
		0.15	137
		0.5	139
		1	154
		1.27	171
		1.99	175
		2.4	178
		2.98	198
		4.7	200
		4.71	218
		5.64	221
		5.8	222
		7.79	230
		9.1	258
		10	330
		10.6	354
		10.7	360
		10.7	360
		15.1	362
		15.4	364
		15.5	381
		16.1	381
		16.3	381
		18	404
		18.3	420
		18.9	437
		24.3	579
		32.5	600
		32.7	635
		38.5	646

Selenium			
Bird		Mammal	
NOAEL	LOAEL	NOAEL	LOAEL
0.092	0.368	0.072	0.145
0.212	0.425	0.108	0.768
0.214	0.429	0.173	0.776
0.219	0.438	0.384	0.763
0.247	0.412	0.388	1.51
0.273	0.546	0.393	6.03
0.284	1.29	0.456	25.4
0.292	2.58	0.735	6.39
0.378	0.0911	0.78	0.089
0.644	0.0988	0.945	0.13
0.89	0.12	1.21	0.296
0.896	0.127	1.6	0.434
1.03	0.355	2.28	0.504
1.37	0.456	2.54	0.55
3.64	0.524	3.2	0.749
0.0632	0.546	3.2	4.18
0.074	0.58	7	4.57
0.0859	0.614	0.053	5.01
0.18	0.675	0.0642	0.265
0.204	0.702	0.0838	0.763
0.213	0.78	0.0869	0.157
0.284	0.826	0.09	0.273
0.292	0.898	0.11	0.215
0.319	1.19	0.112	0.273
0.371	4.49	0.137	0.304
0.379	0.37	0.143	0.221
0.429	0.721	0.146	0.33
0.429	0.408	0.151	0.51
0.617	0.426	0.153	0.548
0.69	0.859	0.155	0.435
0.718	1.23	0.163	0.47
0.909	1.73	0.165	0.34
1.06	1.44	0.17	0.58
1.13	4.53	0.173	0.521
1.23	4.94	0.175	0.54
1.38	2.9	0.181	0.712
1.42	3.48	0.183	0.489
1.45	4.26	0.189	0.564
1.74	8.32	0.191	0.747
2.13	11.5	0.198	0.523
3.04	11.9	0.202	0.768
4.16	0.0912	0.214	0.776
5.75	0.127	0.217	0.763
6.34	0.13	0.217	0.567
7.31	0.18	0.217	0.577
	0.275	0.227	0.869
	0.306	0.236	0.869
	0.5	0.24	0.869
	0.5	0.254	1.31
	0.629	0.261	0.904
	0.788	0.265	1.54
	0.855	0.274	1.21
	0.859	0.277	0.88
	0.896	0.296	1.51
	1.08	0.318	1.23
	1.2	0.356	1.21
	1.38	0.367	1.62
	1.55	0.367	1.59
	1.72	0.368	1.59
	1.78	0.371	2.27
	2.27	0.374	6.39
	2.76	0.375	20
	3.64	0.384	0.0908
		0.384	0.0968
		0.388	0.156

APPENDIX B - TABLE 2

CALCULATION OF NOAELs AND LOAELs FROM ECO SSLs
INCINERATOR DISPOSAL SITE AND SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

	Lead			
	Bird		Mammal	
	NOAEL	LOAEL	NOAEL	LOAEL
			43	651
			50	750
			71.5	762
			75	828
			100	833
			120	991
			136	1370
			137	1770
			139	1990
			169	2570
			171	2570
			180	2570
			187	2840
			200	3630
			200	6170
			218	5
			230	13
			285	8.9
			362	28.2
			364	29
			400	532
			400	50.4
			431	163
			441	180
			534	178
			632	225
			651	383
			750	1360
			1260	508
			1500	373
				460
				800
				800
				1264
				2530
				3.3
				15
				28.7
				29
				29
				29.5
				29.9
				30.4
				46.4
				50
				61.5
				100
				173
				200
				272
				328
				354
				371
				400
				400
				404
				442
				638
				748
				991
				1000
				1430
				1600
				2390
				2400
				2650
Geomean	**10.9**	**44.6**	**40.7**	**186.4**
Value used in Eco SSL	**1.63**	**NA**	**4.7**	**NA**

	Selenium			
	Bird		Mammal	
	NOAEL	LOAEL	NOAEL	LOAEL
			0.393	0.163
			0.407	0.166
			0.425	0.205
			0.426	0.209
			0.432	0.215
			0.435	0.232
			0.435	0.235
			0.435	0.254
			0.438	0.267
			0.452	0.274
			0.464	0.276
			0.49	0.282
			0.5	0.303
			0.515	0.307
			0.61	0.323
			0.652	0.345
			0.68	0.352
			0.735	0.378
			0.78	0.39
			0.781	0.411
			0.784	0.42
			0.81	0.425
			0.945	0.441
			0.996	0.454
			0.996	0.49
			1.09	0.493
			1.14	0.498
			1.26	0.521
			1.6	0.543
			1.96	0.55
			3.2	0.57
			3.2	0.589
			4.57	0.653
			4.57	0.667
			10	0.704
			10	0.754
				0.767
				0.769
				0.794
				0.794
				0.794
				0.794
				0.809
				0.817
				0.823
				0.903
				0.968
				0.984
				0.988
				1.02
				1.11
				1.59
				1.59
				1.79
				1.94
				3.54
				3.74
				4.18
Geomean	**0.606**	**0.819**	**0.437**	**0.661**
Value used in Eco SSL	**0.290**		**0.143**	

CALCULATION OF NOAELs AND LOAELs FROM ECO SSLs
INCINERATOR DISPOSAL SITE AND SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Zinc			
Bird		Mammal	
NOAEL	LOAEL	NOAEL	LOAEL
13.8	98.8	8.23	82.3
14.4	105	8.89	75.9
24.7	66.5	9.64	452
55	76.7	14.4	2514
57.3	123	30	4927
63.9	84.8	34	4878
64.1	31.2	37.9	12.2
67.8	88	41.2	81.1
106	101	42.1	232
14.4	205	42.5	326
15	367	60	326
16.1	988	88	353
21.5	988	89.6	424
28.7	86.6	89.6	103
35.4	105	97.8	87.1
36.6	111	101	2514
43.3	106	110	4927
55	111	167	4878
55.1	112	181	2838
55.3	150	234	8.71
63.2	114	347	16.1
70.6	172	458	28.2
74.3	174	479	75.7
74.7	185	975	81.1
75	145	2486	89.1
75.7	149	4.33	424
85.9	194	4.78	667
86.8	286	4.78	956
92.3	297	9.64	968
96.9	232	10.3	
99.1	237	11.7	
103	354	13.5	
103	503	14.4	
129	480	14.9	
129	21.6	15.7	
142	31	15.7	
143	39	18	
148	65.7	20.2	
155	88	28.9	
158	101	30	
177	126	30.4	
252	132	30.6	
367	143	33.2	
	252	34	
	190	42.1	
	284	42.5	
	315	43.5	
	433	63.7	
	757	56	
	914	60	
	988	88	
	1370	97.5	
		99.1	
		103	
		106	
		110	
		234	
		282	
		295	
		458	
		470	
		479	
		597	
		825	
		845	

CALCULATION OF NOAELs AND LOAELs FROM ECO SSLs
INCINERATOR DISPOSAL SITE AND SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

	Zinc			
	Bird		Mammal	
	NOAEL	LOAEL	NOAEL	LOAEL
			846	
			1419	
			1684	
			2486	
Geomean	66.07	171.44	75.37	297.58
Value used in Eco SSL	66.1		75.4	

APPENDIX B - TABLE 3

DERIVATION OF TOXICITY REFERENCE VALUES USING ALLOMETRIC SCALING
INCINERATOR DISPOSAL SITE AND SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Parameters	Mammal Test Species[1]				Bird Test Species[1]				Body weight (kg) for selected receptor[2]				
	NOAEL	Body weight (kg)	LOAEL	Body weight (kg)	NOAEL	Body weight	LOAEL	Body weight	mouse	dove	shrew	sandpiper	robin
POLYCYCLIC AROMATIC HYDROCARBONS													
HIGH MOLECULAR WEIGHT PAHs	0.615	0.037	38.4		2	0.055	20	0.055	0.019	0.15	0.015	0.04	0.08
INORGANICS													
CADMIUM	0.77	0.43	6.9		1.47		6.35		0.019	0.15	0.015	0.04	0.08
CHROMIUM	2.4		58.17		2.66		15.6		0.019	0.15	0.015	0.04	0.08
COBALT	7.33		18.9		7.61		18.3		0.019	0.15	0.015	0.04	0.08
LEAD	4.7	0.3	186.4		1.63	1.81	44.6		0.019	0.15	0.015	0.04	0.08
MERCURY	0.032	0.35	0.16	0.35	0.0064	1	0.064	1	0.019	0.15	0.015	0.04	0.08
NICKEL	1.7	0.025	14.77		6.71		18.6		0.019	0.15	0.015	0.04	0.08
SELENIUM	0.14	17.8	0.66		0.29	0.328	0.819		0.019	0.15	0.015	0.04	0.08
ZINC	75.4		297.6		66.1		171		0.019	0.15	0.015	0.04	0.08

APPENDIX B - TABLE 3

DERIVATION OF TOXICITY REFERENCE VALUES USING ALLOMETRIC SCALING
INCINERATOR DISPOSAL SITE AND SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS
PAGE 2 OF 2

Parameters	Allometric scaling factor(3)		receptor specific NOAEL(4)					receptor specific LOAEL(4)				
	bird	mammal	mouse	dove	shrew	sandpiper	robin	mouse	dove	shrew	sandpiper	robin
POLYCYCLIC AROMATIC HYDROCARBONS												
HIGH MOLECULAR WEIGHT PAHs	1.2	0.94	0.64	2.44	0.65	1.88	2.16	38	24.44	38	18.77	21.56
INORGANICS												
CADMIUM	1.2	0.94	0.93	1.47	0.94	1.47	1.47	6.90	6.35	6.90	6.35	6.35
CHROMIUM	1.2	0.94	2.40	2.66	2.40	2.66	2.66	58.17	15.60	58.17	15.60	15.60
COBALT	1.2	0.94	7.33	7.61	7.33	7.61	7.61	18.90	18.30	18.90	18.30	18.30
LEAD	1.2	0.94	5.55	0.99	5.63	0.76	0.87	186	44.60	186	44.60	44.60
MERCURY	1.2	0.642	0.09	0.0044	0.10	0.0034	0.0039	0.45	0.04	0.49	0.03	0.04
NICKEL	1.2	0.94	1.73	6.71	1.75	6.71	6.71	14.77	18.60	14.77	18.60	18.60
SELENIUM	1.2	0.94	0.21	0.25	0.21	0.19	0.22	0.66	0.82	0.66	0.82	0.82
ZINC	1.2	0.94	75.40	66.10	75.40	66.10	66.10	298	171	298	171	171

1 - The sources of the NOAELs, LOAELS, and body weight for the test species are presented in Appendix B - Table 1
2 - The sources of the body weights for the receptor species are presented in Table 3-2

3 - The allometric scaling factors are presented in Sample and Arenal, 1999.
4 - NOAELw = NOAELt(BWt/BWw)(1-b)

where:
NOAELw = Toxicity value (mg/kg body weight-day) for selected avian or mammalian wildlife species.
NOAELt = Toxicity value for avian or mammalian species “t,” test species to extrapolate from (e.g., rat) mg/kg body weight-day
BWt = Body weight of avian or mammalian test species (kg)
BWw = Body weight of avian or mammalian wildlife species (kg)
b = Allometric scaling factor that is specific to either birds or mammals (unitless)

APPENDIX B - TABLE 4.1

CHEMICAL CONCENTRATIONS IN SURFACE SOIL AND TISSUE
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Surface Soil Concentrations (mg/kg)				Earthworm Bioaccumulation Factors		Earthworm Concentrations (mg/kg)		Plant Bioaccumulation Factors		Plant Concentrations (mg/kg)	
	Maximum Detection	Average of All Results	Average of Positive Results	Average (1)	Conservative	Average	Maximum Detection	Average	Conservative	Average	Maximum Detection	Average
Inorganics												
CADMIUM	2.50E+02	1.34E+01	1.43E+01	1.34E+01	Regression equation from Eco SSL		6.68E+02	6.52E+01	Regression equation from Eco SSL		1.27E+01	2.57E+00
CHROMIUM	2.49E+02	2.31E+01	2.31E+01	2.31E+01	3.06E-01	3.06E-01	7.62E+01	7.07E+00	4.10E-02	4.10E-02	1.02E+01	9.47E-01
COPPER	1.57E+03	1.34E+02	1.34E+02	1.34E+02	5.15E-01	5.15E-01	8.09E+02	6.90E+01	Regression equation from Eco SSL		3.54E+01	1.34E+01
LEAD	4.57E+03	2.87E+02	2.87E+02	2.87E+02	Regression equation from Eco SSL		7.23E+02	7.74E+01	Regression equation from Eco SSL		3.00E+01	6.34E+00
MERCURY	1.60E-01	3.40E-02	3.60E-02	3.40E-02	Regression - Sample et al., (1998)		5.83E-01	3.46E-01	5.00E+00	6.52E-01	8.00E-01	2.22E-02
NICKEL	1.21E+02	1.19E+01	1.19E+01	1.19E+01	1.06E+00	1.06E+00	1.28E+02	1.26E+01	Regression equation from Eco SSL		3.91E+00	6.90E-01
SELENIUM	4.04E+01	3.60E+00	4.40E+00	3.60E+00	Regression equation from Eco SSL		1.40E+01	2.37E+00	Regression equation from Eco SSL		3.02E+01	2.09E+00
ZINC	7.23E+03	6.02E+02	6.02E+02	6.02E+02	Regression equation from Eco SSL		1.58E+03	6.98E+02	Regression equation from Eco SSL		6.64E+02	1.67E+02

1 - Average concentration is the mean concentration of all samples, using 1/2 the detection limit for non-detects, unless the value is greater than the maximum concentration. In that case, the average concentration is the mean of the positive detections.

APPENDIX B - TABLE 4.2

WHITE-FOOTED MOUSE - CONSERVATIVE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Max Soil Conc. (mg/kg)	Vegetation Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Veget.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
Inorganics									
CADMIUM	2.50E+02	1.27E+01	1.38E+00	2.11E+00	3.49E+00	9.28E-01	6.90E+00	3.8E+00	5.1E-01
CHROMIUM	2.49E+02	1.02E+01	1.37E+00	1.70E+00	3.07E+00	2.40E+00	5.82E+01	1.3E+00	5.3E-02
COPPER	1.57E+03	3.54E+01	8.64E+00	5.90E+00	1.45E+01	9.36E+00	8.27E+01	1.6E+00	1.8E-01
LEAD	4.57E+03	3.00E+01	2.52E+01	4.99E+00	3.01E+01	5.55E+00	1.86E+02	5.4E+00	1.6E-01
MERCURY	1.60E-01	8.00E-01	8.81E-04	1.33E-01	1.34E-01	9.08E-02	4.54E-01	1.5E+00	3.0E-01
NICKEL	1.21E+02	3.91E+00	6.66E-01	6.52E-01	1.32E+00	1.73E+00	1.48E+01	7.6E-01	8.9E-02
SELENIUM	4.04E+01	3.02E+01	2.22E-01	5.02E+00	5.24E+00	2.11E-01	6.60E-01	2.5E+01	7.9E+00
ZINC	7.23E+03	6.64E+02	3.98E+01	1.11E+02	1.50E+02	7.54E+01	2.98E+02	2.0E+00	5.1E-01

Shaded cells indicate hazard quotient greater than 1.

Body Weight = (BW)	1.90E-02	kg	Dose (soil) = (Cs * Is)(H)/BW	Conc = Concentration
Food Ingestion Rate = (If)	3.16E-03	kg/day	Dose (vegetation) = (Cv * If)(H)/BW	LOAEL = Lowest Observed Adverse Effects Concentration
Soil Ingestion Rate = (Is)	1.05E-04	kg/day	Cv = Contaminant concentration in vegetation	NOAEL = No Observed Adverse Effects Concentration
Home Range = (HR)	0.035-0.32	acres	Cs = Contaminant concentration in soil	
Contaminated Area = (CA)	Assume equal to home range		Total Dose = Dose (soil) + Dose (vegetation)	
			H=CA/HR (Assume = to 1)	

APPENDIX B - TABLE 4.3

MOURNING DOVE - CONSERVATIVE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Max Soil Conc. (mg/kg)	Vegetation Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Veget.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
Inorganics									
CADMIUM	2.50E+02	1.27E+01	3.92E+00	1.23E+00	5.15E+00	1.47E+00	6.35E+00	3.5E+00	8.1E-01
CHROMIUM	2.49E+02	1.02E+01	3.90E+00	9.91E-01	4.89E+00	2.66E+00	1.56E+01	1.8E+00	3.1E-01
COPPER	1.57E+03	3.54E+01	2.46E+01	3.44E+00	2.80E+01	2.55E+00	3.49E+01	1.1E+01	8.0E-01
LEAD	4.57E+03	3.00E+01	7.16E+01	2.91E+00	7.45E+01	9.91E-01	4.46E+01	7.5E+01	1.7E+00
MERCURY	1.60E-01	8.00E-01	2.51E-03	7.77E-02	8.02E-02	4.38E-03	4.38E-02	1.8E+01	1.8E+00
NICKEL	1.21E+02	3.91E+00	1.90E+00	3.80E-01	2.28E+00	6.71E+00	1.86E+01	3.4E-01	1.2E-01
SELENIUM	4.04E+01	3.02E+01	6.33E-01	2.93E+00	3.56E+00	2.48E-01	8.19E-01	1.4E+01	4.3E+00
ZINC	7.23E+03	6.64E+02	1.13E+02	6.44E+01	1.78E+02	6.61E+01	1.71E+02	2.7E+00	1.0E+00

Shaded cells indicate hazard quotient greater than 1.

Body Weight = (BW) 1.50E-01 kg
Food Ingestion Rate = (If) 1.46E-02 kg/day
Soil Ingestion Rate = (Is) 2.35E-03 kg/day
Home Range = (HR) 2.56E+03 acres
Contaminated Area = (CA) Assume equal to home range

Dose (soil) = (Cs * Is)(H)/BW
Dose (vegetation) = (Cv * If)(H)/BW
Cv = Contaminant concentration in vegetation
Cs = Contaminant concentration in soil
Total Dose = Dose (soil) + Dose (vegetation)
H=CA/HR (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration

APPENDIX B - TABLE 4.4

SHORT-TAILED SHREW - CONSERVATIVE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Max Soil Conc. (mg/kg)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from:		Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients	
			Soil	Invert.				NOAEL	LOAEL
Inorganics									
CADMIUM	2.50E+02	6.68E+02	1.43E+00	1.23E+02	1.25E+02	9.42E-01	6.90E+00	1.3E+02	1.8E+01
CHROMIUM	2.49E+02	7.62E+01	1.42E+00	1.41E+01	1.55E+01	2.40E+00	5.82E+01	6.5E+00	2.7E-01
COPPER	1.57E+03	8.09E+02	8.98E+00	1.50E+02	1.59E+02	9.50E+00	8.27E+01	1.7E+01	1.9E+00
LEAD	4.57E+03	7.23E+02	2.61E+01	1.34E+02	1.60E+02	5.63E+00	1.86E+02	2.8E+01	8.6E-01
MERCURY	1.60E-01	5.83E-01	9.15E-04	1.08E-01	1.09E-01	9.88E-02	4.94E-01	1.1E+00	2.2E-01
NICKEL	1.21E+02	1.28E+02	6.92E-01	2.37E+01	2.44E+01	1.75E+00	1.48E+01	1.4E+01	1.7E+00
SELENIUM	4.04E+01	1.40E+01	2.31E-01	2.58E+00	2.81E+00	2.14E-01	6.60E-01	1.3E+01	4.3E+00
ZINC	7.23E+03	1.58E+03	4.14E+01	2.92E+02	3.33E+02	7.54E+01	2.98E+02	4.4E+00	1.1E+00

Shaded cells indicate hazard quotient greater than 1.

Body Weight = (BW) 1.50E-02 kg
Food Ingestion Rate = (If) 2.77E-03 kg/day
Soil Ingestion Rate = (Is) 8.58E-05 kg/day
Home Range = (HR) 9.60E-01 acres
Contaminated Area = (CA) Assume equal to home range

Dose (soil) = (Cs * Is)(H)/BW
Dose (invertebrate) = (Ci * If)(H)/BW
Ci = Contaminant concentration in invertebrate
Cs = Contaminant concentration in soil
Total Dose = Dose (soil) + Dose (invertebrate)
H=CA/HR (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration

APPENDIX B - TABLE 4.5

AMERICAN ROBIN - CONSERVATIVE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Max Soil Conc. (mg/kg)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Invert.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	LOAEL
Inorganics									
CADMIUM	2.50E+02	6.68E+02	5.76E+00	7.84E+01	8.41E+01	1.47E+00	6.35E+00	5.7E+01	1.3E+01
CHROMIUM	2.49E+02	7.62E+01	5.73E+00	8.94E+00	1.47E+01	2.66E+00	1.56E+01	5.5E+00	9.4E-01
COPPER	1.57E+03	8.09E+02	3.62E+01	9.49E+01	1.31E+02	2.25E+00	3.49E+01	5.8E+01	3.8E+00
LEAD	4.57E+03	7.23E+02	1.05E+02	8.48E+01	1.90E+02	8.74E-01	4.46E+01	2.2E+02	4.3E+00
MERCURY	1.60E-01	5.83E-01	3.68E-03	6.85E-02	7.21E-02	3.86E-03	3.86E-02	1.9E+01	1.9E+00
NICKEL	1.21E+02	1.28E+02	2.79E+00	1.50E+01	1.78E+01	6.71E+00	1.86E+01	2.7E+00	9.6E-01
SELENIUM	4.04E+01	1.40E+01	9.30E-01	1.64E+00	2.57E+00	2.19E-01	8.19E-01	1.2E+01	3.1E+00
ZINC	7.23E+03	1.58E+03	1.66E+02	1.85E+02	3.52E+02	6.61E+01	1.71E+02	5.3E+00	2.1E+00

Shaded cells indicate hazard quotient greater than 1.

Body Weight = (BW)	8.00E-02	kg	Dose (soil) = (Cs * Is)(H)/BW	Conc = Concentration
Food Ingestion Rate = (If)	9.39E-03	kg/day	Dose (invertebrate) = (Ci * If)(H)/BW	LOAEL = Lowest Observed Adverse Effects Concentration
Soil Ingestion Rate = (Is)	1.84E-03	kg/day	Ci = Contaminant concentration in invertebrate	NOAEL = No Observed Adverse Effects Concentration
Home Range = (HR)	0.27-1.04	acres	Cs = Contaminant concentration in soil	
Contaminated Area = (CA)	Assume equal to home range		Total Dose = Dose (soil) + Dose (invertebrate)	
			H=CA/HR (Assume = to 1)	

APPENDIX B - TABLE 4.6

WHITE-FOOTED MOUSE - AVERAGE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Average Soil Conc. (mg/kg)	Vegetation Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Veget.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
Inorganics									
CADMIUM	1.34E+01	2.57E+00	2.77E-02	4.36E-01	4.64E-01	9.28E-01	6.90E+00	5.0E-01	6.7E-02
CHROMIUM	2.31E+01	9.47E-01	4.77E-02	1.61E-01	2.09E-01	2.40E+00	5.82E+01	8.7E-02	3.6E-03
COPPER	1.34E+02	1.34E+01	2.77E-01	2.28E+00	2.56E+00	9.36E+00	8.27E+01	2.7E-01	3.1E-02
LEAD	2.87E+02	6.34E+00	5.92E-01	1.08E+00	1.67E+00	5.55E+00	1.86E+02	3.0E-01	9.0E-03
MERCURY	3.40E-02	2.22E-02	7.02E-05	3.77E-03	3.84E-03	9.08E-02	4.54E-01	4.2E-02	8.5E-03
NICKEL	1.19E+01	6.90E-01	2.46E-02	1.17E-01	1.42E-01	1.73E+00	1.48E+01	8.2E-02	9.6E-03
SELENIUM	3.60E+00	2.09E+00	7.43E-03	3.55E-01	3.63E-01	2.11E-01	6.60E-01	1.7E+00	5.5E-01
ZINC	6.02E+02	1.67E+02	1.24E+00	2.85E+01	2.97E+01	7.54E+01	2.98E+02	3.9E-01	1.0E-01

Shaded cells indicate hazard quotient greater than 1.

Body Weight = (BW)	1.90E-02	kg	Dose (soil) = (Cs * Is)(H)/BW	Conc = Concentration
Food Ingestion Rate = (If)	3.23E-03	kg/day	Dose (vegetation) = (Cv * If)(H)/BW	LOAEL = Lowest Observed Adverse Effects Concentration
Soil Ingestion Rate = (Is)	3.92E-05	kg/day	Cv = Contaminant concentration in vegetation	NOAEL = No Observed Adverse Effects Concentration
Home Range = (HR)	0.035-0.32	acres	Cs = Contaminant concentration in soil	
Contaminated Area = (CA)	Assume equal to home range		Total Dose = Dose (soil) + Dose (vegetation)	
			H=CA/HR (Assume = to 1)	

APPENDIX B - TABLE 4.7

MOURNING DOVE - AVERAGE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Average Soil Conc. (mg/kg)	Vegetation Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Veget.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
Inorganics									
CADMIUM	1.34E+01	2.57E+00	9.22E-02	2.72E-01	3.64E-01	1.47E+00	6.35E+00	2.5E-01	5.7E-02
CHROMIUM	2.31E+01	9.47E-01	1.59E-01	1.00E-01	2.59E-01	2.66E+00	1.56E+01	9.7E-02	1.7E-02
COPPER	1.34E+02	1.34E+01	9.22E-01	1.42E+00	2.34E+00	2.55E+00	3.49E+01	9.2E-01	6.7E-02
LEAD	2.87E+02	6.34E+00	1.97E+00	6.71E-01	2.65E+00	9.91E-01	4.46E+01	2.7E+00	5.9E-02
MERCURY	3.40E-02	2.22E-02	2.34E-04	2.35E-03	2.58E-03	4.38E-03	4.38E-02	5.9E-01	5.9E-02
NICKEL	1.19E+01	6.90E-01	8.18E-02	7.31E-02	1.55E-01	6.71E+00	1.86E+01	2.3E-02	8.3E-03
SELENIUM	3.60E+00	2.09E+00	2.48E-02	2.21E-01	2.46E-01	2.48E-01	8.19E-01	9.9E-01	3.0E-01
ZINC	6.02E+02	1.67E+02	4.14E+00	1.77E+01	2.19E+01	6.61E+01	1.71E+02	3.3E-01	1.3E-01

Shaded cells indicate hazard quotient greater than 1.

Body Weight = (BW)	1.50E-01	kg	Dose (soil) = (Cs * Is)(H)/BW	Conc = Concentration
Food Ingestion Rate = (If)	1.59E-02	kg/day	Dose (vegetation) = (Cv * If)(H)/BW	LOAEL = Lowest Observed Adverse Effects Concentration
Soil Ingestion Rate = (Is)	1.03E-03	kg/day	Cv = Contaminant concentration in vegetation	NOAEL = No Observed Adverse Effects Concentration
Home Range = (HR)	2.56E+03	acres	Cs = Contaminant concentration in soil	
Contaminated Area = (CA)	Assume equal to home range		Total Dose = Dose (soil) + Dose (vegetation)	
			H=CA/HR (Assume = to 1)	

APPENDIX B - TABLE 4.8

SHORT-TAILED SHREW - AVERAGE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Average Soil Conc. (mg/kg)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Invert.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
Inorganics									
CADMIUM	1.34E+01	6.52E+01	2.30E-02	1.23E+01	1.23E+01	9.42E-01	6.90E+00	1.3E+01	1.8E+00
CHROMIUM	2.31E+01	7.07E+00	3.96E-02	1.34E+00	1.38E+00	2.40E+00	5.82E+01	5.7E-01	2.4E-02
COPPER	1.34E+02	6.90E+01	2.30E-01	1.30E+01	1.33E+01	9.50E+00	8.27E+01	1.4E+00	1.6E-01
LEAD	2.87E+02	7.74E+01	4.93E-01	1.46E+01	1.51E+01	5.63E+00	1.86E+02	2.7E+00	8.1E-02
MERCURY	3.40E-02	3.46E-01	5.83E-05	6.54E-02	6.55E-02	9.88E-02	4.94E-01	6.6E-01	1.3E-01
NICKEL	1.19E+01	1.26E+01	2.04E-02	2.38E+00	2.40E+00	1.75E+00	1.48E+01	1.4E+00	1.6E-01
SELENIUM	3.60E+00	2.37E+00	6.18E-03	4.48E-01	4.54E-01	2.14E-01	6.60E-01	2.1E+00	6.9E-01
ZINC	6.02E+02	6.98E+02	1.03E+00	1.32E+02	1.33E+02	7.54E+01	2.98E+02	1.8E+00	4.5E-01

Shaded cells indicate hazard quotient greater than 1.

Body Weight = (BW)	1.50E-02	kg	Dose (soil) = (Cs * Is)(H)/BW
Food Ingestion Rate = (If)	2.83E-03	kg/day	Dose (invertebrate) = (Ci * If)(H)/BW
Soil Ingestion Rate = (Is)	2.57E-05	kg/day	Ci = Contaminant concentration in invertebrate
Home Range = (HR)	9.60E-01	acres	Cs = Contaminant concentration in soil
Contaminated Area = (CA)	Assume equal to home range		Total Dose = Dose (soil) + Dose (invertebrate)
			H=CA/HR (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration

APPENDIX B - TABLE 4.9

AMERICAN ROBIN - AVERAGE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Average Soil Conc. (mg/kg)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from:		Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients	
			Soil	Invert.				NOAEL	LOAEL
Inorganics									
CADMIUM	1.34E+01	6.52E+01	1.20E-01	8.57E+00	8.69E+00	1.47E+00	6.35E+00	5.9E+00	1.4E+00
CHROMIUM	2.31E+01	7.07E+00	2.08E-01	9.29E-01	1.14E+00	2.66E+00	1.56E+01	4.3E-01	7.3E-02
COPPER	1.34E+02	6.90E+01	1.20E+00	9.07E+00	1.03E+01	2.25E+00	3.49E+01	4.6E+00	2.9E-01
LEAD	2.87E+02	7.74E+01	2.58E+00	1.02E+01	1.28E+01	8.74E-01	4.46E+01	1.5E+01	2.9E-01
MERCURY	3.40E-02	3.46E-01	3.06E-04	4.55E-02	4.58E-02	3.86E-03	3.86E-02	1.2E+01	1.2E+00
NICKEL	1.19E+01	1.26E+01	1.07E-01	1.66E+00	1.76E+00	6.71E+00	1.86E+01	2.6E-01	9.5E-02
SELENIUM	3.60E+00	2.37E+00	3.24E-02	3.12E-01	3.44E-01	2.19E-01	8.19E-01	1.6E+00	4.2E-01
ZINC	6.02E+02	6.98E+02	5.41E+00	9.17E+01	9.71E+01	6.61E+01	1.71E+02	1.5E+00	5.7E-01

Shaded cells indicate hazard quotient greater than 1.

Body Weight = (BW)	8.00E-02	kg	Dose (soil) = (Cs * Is)(H)/BW
Food Ingestion Rate = (If)	1.05E-02	kg/day	Dose (invertebrate) = (Ci * If)(H)/BW
Soil Ingestion Rate = (Is)	7.19E-04	kg/day	Ci = Contaminant concentration in invertebrate
Home Range = (HR)	0.27-1.04	acres	Cs = Contaminant concentration in soil
Contaminated Area = (CA)	Assume equal to home range		Total Dose = Dose (soil) + Dose (invertebrate)
			H=CA/HR (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration

APPENDIX B - TABLE 5.1

CHEMICAL CONCENTRATIONS IN SEDIMENT AND TISSUE
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Sediment Concentrations (mg/kg)				Fish/Invertebrate Bioaccumulation Factors		Fish/Invertebrate Concentrations (mg/kg)	
	Maximum Detection	Average of All Results	Average of Positive Results	Average (1)	Conservative	Average	Maximum Detection	Average
Inorganics								
CADMIUM	5.20E-01	2.10E-01	3.60E-01	2.10E-01	7.99E+00	6.00E-01	4.92E+00	2.39E+00
COPPER	1.62E+01	1.53E+01	1.53E+01	1.53E+01	5.25E+00	1.56E+00	8.51E+01	2.38E+01
NICKEL	1.61E+01	1.50E+01	1.50E+01	1.50E+01	2.32E+00	4.86E-01	3.74E+01	7.29E+00
SELENIUM	5.90E-01	2.80E-01	4.00E-01	2.80E-01	1.00E+00	1.00E+00	6.30E-01	3.65E-01
ZINC	8.18E+01	7.65E+01	7.65E+01	7.65E+01	7.53E+00	1.94E+00	3.63E+02	3.55E+02

1 - Average concentration is the mean concentration of all samples, using 1/2 the detection limit for non-detects, unless the value is greater than the maximum concentration. In that case, the average concentration is the mean of the positive detections.

APPENDIX B - TABLE 5.2

SHORT-TAILED SHREW - CONSERVATIVE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SEDIMENT
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Max Sediment Conc. (mg/kg)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from:		Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients	
			Sediment	Invert.				NOAEL	LOAEL
Inorganics									
CADMIUM	5.20E-01	4.92E+00	2.97E-03	9.11E-01	9.14E-01	9.42E-01	6.90E+00	9.7E-01	1.3E-01
COPPER	1.62E+01	8.51E+01	9.27E-02	1.57E+01	1.58E+01	9.50E+00	8.27E+01	1.7E+00	1.9E-01
NICKEL	1.61E+01	3.74E+01	9.21E-02	6.91E+00	7.00E+00	1.75E+00	1.48E+01	4.0E+00	4.7E-01
SELENIUM	5.90E-01	6.30E-01	3.38E-03	1.17E-01	1.20E-01	2.14E-01	6.60E-01	5.6E-01	1.8E-01
ZINC	8.18E+01	3.63E+02	4.68E-01	6.71E+01	6.76E+01	7.54E+01	2.98E+02	9.0E-01	2.3E-01

Shaded cells indicate hazard quotient greater than 1.

Body Weight = (BW)	1.50E-02	kg	Dose (sediment) = (Cs * Is)(H)/BW	Conc = Concentration
Food Ingestion Rate = (If)	2.77E-03	kg/day	Dose (invertebrate) = (Ci * If)(H)/BW	LOAEL = Lowest Observed Adverse Effects Concentration
Soil Ingestion Rate = (Is)	8.58E-05	kg/day	Ci = Contaminant concentration in invertebrate	NOAEL = No Observed Adverse Effects Concentration
Home Range = (HR)	9.60E-01	acres	Cs = Contaminant concentration in sediment	
Contaminated Area = (CA)	Assume equal to home range		Total Dose = Dose (sediment) + Dose (invertebrate)	
			H=CA/HR (Assume = to 1)	

APPENDIX B - TABLE 5.3

SPOTTED SANDPIPER - CONSERVATIVE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SEDIMENT
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Max Sediment Conc. (mg/kg)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from:		Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients	
			Sediment	Invert.				NOAEL	LOAEL
Inorganics									
CADMIUM	5.20E-01	4.92E+00	1.67E-02	7.22E-01	7.39E-01	1.47E+00	6.35E+00	5.0E-01	1.2E-01
COPPER	1.62E+01	8.51E+01	5.21E-01	1.25E+01	1.30E+01	1.96E+00	3.49E+01	6.6E+00	3.7E-01
NICKEL	1.61E+01	3.74E+01	5.18E-01	5.48E+00	6.00E+00	6.71E+00	1.86E+01	8.9E-01	3.2E-01
SELENIUM	5.90E-01	6.30E-01	1.90E-02	9.24E-02	1.11E-01	1.90E-01	8.19E-01	5.9E-01	1.4E-01
ZINC	8.18E+01	3.63E+02	2.63E+00	5.32E+01	5.58E+01	6.61E+01	1.71E+02	8.4E-01	3.3E-01

Shaded cells indicate hazard quotient greater than 1.

Body Weight = (BW) 4.00E-02 kg
Food Ingestion Rate = (If) 5.87E-03 kg/day
Soil Ingestion Rate = (Is) 1.29E-03 kg/day
Home Range = (HR) 6.20E-01 acres
Contaminated Area = (CA) Assume equal to home range

Dose (sediment) = (Cs * Is)(H)/BW
Dose (invertebrate) = (Ci * If)(H)/BW
Ci = Contaminant concentration in invertebrate
Cs = Contaminant concentration in sediment
Total Dose = Dose (sediment) + Dose (invertebrate)
H=CA/HR (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration

APPENDIX B - TABLE 5.4

SHORT-TAILED SHREW - AVERAGE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SEDIMENT
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Average Sediment Conc. (mg/kg)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from: Sediment	Dose (mg/kg/d) from: Invert.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
Inorganics									
COPPER	1.53E+01	2.38E+01	2.63E-02	4.50E+00	4.52E+00	9.50E+00	8.27E+01	4.8E-01	5.5E-02
NICKEL	1.50E+01	7.29E+00	2.57E-02	1.38E+00	1.40E+00	1.75E+00	1.48E+01	8.0E-01	9.5E-02

Shaded cells indicate hazard quotient greater than 1.

Body Weight = (BW)	1.50E-02	kg	Dose (sediment) = (Cs * Is)(H)/BW	Conc = Concentration
Food Ingestion Rate = (If)	2.83E-03	kg/day	Dose (invertebrate) = (Ci * If)(H)/BW	LOAEL = Lowest Observed Adverse Effects Concentration
Soil Ingestion Rate = (Is)	2.57E-05	kg/day	Ci = Contaminant concentration in invertebrate	NOAEL = No Observed Adverse Effects Concentration
Home Range = (HR)	9.60E-01	acres	Cs = Contaminant concentration in sediment	
Contaminated Area = (CA)	Assume equal to home range		Total Dose = Dose (sediment) + Dose (invertebrate)	
			H=CA/HR (Assume = to 1)	

APPENDIX B - TABLE 5.5

SPOTTED SANDPIPER - AVERAGE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SEDIMENT
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Average Sediment Conc. (mg/kg)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from:		Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients	
			Sediment	Invert.				NOAEL	LOAEL
Inorganics									
COPPER	1.53E+01	2.38E+01	4.93E-01	3.49E+00	3.98E+00	1.96E+00	3.49E+01	2.0E+00	1.1E-01
NICKEL	1.50E+01	7.29E+00	4.83E-01	1.07E+00	1.55E+00	6.71E+00	1.86E+01	2.3E-01	8.3E-02

Shaded cells indicate hazard quotient greater than 1.

Body Weight = (BW)	4.00E-02	kg	Dose (sediment) = (Cs * Is)(H)/BW	Conc = Concentration
Food Ingestion Rate = (If)	5.87E-03	kg/day	Dose (invertebrate) = (Ci * If)(H)/BW	LOAEL = Lowest Observed Adverse Effects Concentration
Soil Ingestion Rate = (Is)	1.29E-03	kg/day	Ci = Contaminant concentration in invertebrate	NOAEL = No Observed Adverse Effects Concentration
Home Range = (HR)	6.20E-01	acres	Cs = Contaminant concentration in sediment	
Contaminated Area = (CA)	Assume equal to home range		Total Dose = Dose (sediment) + Dose (invertebrate)	
			H=CA/HR (Assume = to 1)	

APPENDIX B - TABLE 6.1

CHEMICAL CONCENTRATIONS IN SURFACE SOIL AND TISSUE
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Surface Soil Concentrations (mg/kg)				Earthworm Bioaccumulation Factors		Earthworm Concentrations (mg/kg)		Plant Bioaccumulation Factors		Plant Concentrations (mg/kg)	
	Maximum Detection	Average of All Results	Average of Positive Results	Average (1)	Conservative	Average	Maximum Detection	Average	Conservative	Average	Maximum Detection	Average
Inorganics												
CADMIUM	1.70E-01	1.70E-01	1.70E-01	1.70E-01	Regression equation from Eco SSL		2.02E+00	2.02E+00	Regression equation from Eco SSL		2.36E-01	2.36E-01
LEAD	4.76E+02	7.03E+01	7.03E+01	7.03E+01	Regression equation from Eco SSL		1.16E+02	2.49E+01	Regression equation from Eco SSL		8.42E+00	2.88E+00
SELENIUM	2.20E+00	2.20E+00	2.20E+00	2.20E+00	Regression equation from Eco SSL		1.65E+00	1.65E+00	Regression equation from Eco SSL		1.21E+00	1.21E+00
ZINC	1.07E+02	7.75E+01	7.75E+01	7.75E+01	Regression equation from Eco SSL		3.96E+02	3.56E+02	Regression equation from Eco SSL		6.43E+01	5.38E+01
PAHs												
BENZO(A)ANTHRACENE	1.58E+02	4.91E+00	5.26E+00	4.91E+00	1.59E+00	1.59E+00	2.51E+02	7.80E+00	Regression equation from Eco SSL		1.35E+00	1.72E-01
BENZO(A)PYRENE	1.87E+02	6.35E+00	6.57E+00	6.35E+00	1.33E+00	1.33E+00	2.49E+02	8.45E+00	Regression equation from Eco SSL		2.09E+01	7.72E-01
BENZO(B)FLUORANTHENE	3.23E+02	1.01E+01	1.05E+01	1.01E+01	2.60E+00	2.60E+00	8.40E+02	2.63E+01	3.10E-01	3.10E-01	1.00E+02	3.14E+00
BENZO(G,H,I)PERYLENE	1.13E+02	3.73E+00	3.86E+00	3.73E+00	2.94E+00	2.94E+00	3.32E+02	1.10E+01	Regression equation from Eco SSL		1.06E+02	1.87E+00
BENZO(K)FLUORANTHENE	2.80E+01	1.32E+00	1.72E+00	1.32E+00	2.60E+00	2.60E+00	7.28E+01	3.43E+00	Regression equation from Eco SSL		2.03E+00	1.47E-01
CHRYSENE	1.71E+02	5.50E+00	5.80E+00	5.50E+00	2.29E+00	2.29E+00	3.92E+02	1.26E+01	Regression equation from Eco SSL		1.42E+00	1.84E-01
DIBENZO(A,H)ANTHRACENE	2.50E+00	2.75E-01	3.24E-01	2.75E-01	2.31E+00	2.31E+00	5.78E+00	6.35E-01	1.30E-01	1.30E-01	3.25E-01	3.57E-02
INDENO(1,2,3-CD)PYRENE	9.82E+01	3.79E+00	3.92E+00	3.79E+00	2.86E+00	2.86E+00	2.81E+02	1.08E+01	1.10E-01	1.10E-01	1.08E+01	4.17E-01
PYRENE	2.39E+02	6.76E+00	7.00E+00	6.76E+00	1.75E+00	1.75E+00	4.18E+02	1.18E+01	7.20E-01	7.20E-01	1.72E+02	4.87E+00

1 - Average concentration is the mean concentration of all samples, using 1/2 the detection limit for non-detects, unless the value is greater than the maximum concentration. In that case, the average concentration is the mean of the positive detections.

APPENDIX B - TABLE 6.2

WHITE-FOOTED MOUSE - CONSERVATIVE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Max Soil Conc. (mg/kg)	Vegetation Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Veget.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
Inorganics									
CADMIUM	1.70E-01	2.36E-01	9.36E-04	3.94E-02	4.03E-02	9.28E-01	6.90E+00	4.3E-02	5.8E-03
LEAD	4.76E+02	8.42E+00	2.62E+00	1.40E+00	4.02E+00	5.55E+00	1.86E+02	7.3E-01	2.2E-02
SELENIUM	2.20E+00	1.21E+00	1.21E-02	2.02E-01	2.14E-01	2.11E-01	6.60E-01	1.0E+00	3.2E-01
ZINC	1.07E+02	6.43E+01	5.89E-01	1.07E+01	1.13E+01	7.54E+01	2.98E+02	1.5E-01	3.8E-02
PAHs									
BENZO(A)ANTHRACENE	1.58E+02	1.35E+00	8.70E-01	2.25E-01	1.09E+00	6.40E-01	3.84E+01	1.7E+00	2.9E-02
BENZO(A)PYRENE	1.87E+02	2.09E+01	1.03E+00	3.48E+00	4.51E+00	6.40E-01	3.84E+01	7.0E+00	1.2E-01
BENZO(B)FLUORANTHENE	3.23E+02	1.00E+02	1.78E+00	1.67E+01	1.85E+01	6.40E-01	3.84E+01	2.9E+01	4.8E-01
BENZO(G,H,I)PERYLENE	1.13E+02	1.06E+02	6.22E-01	1.76E+01	1.82E+01	6.40E-01	3.84E+01	2.8E+01	4.7E-01
BENZO(K)FLUORANTHENE	2.80E+01	2.03E+00	1.54E-01	3.37E-01	4.91E-01	6.40E-01	3.84E+01	7.7E-01	1.3E-02
CHRYSENE	1.71E+02	1.42E+00	9.41E-01	2.36E-01	1.18E+00	6.40E-01	3.84E+01	1.8E+00	3.1E-02
DIBENZO(A,H)ANTHRACENE	2.50E+00	3.25E-01	1.38E-02	5.41E-02	6.79E-02	6.40E-01	3.84E+01	1.1E-01	1.8E-03
INDENO(1,2,3-CD)PYRENE	9.82E+01	1.08E+01	5.41E-01	1.80E+00	2.34E+00	6.40E-01	3.84E+01	3.7E+00	6.1E-02
PYRENE	2.39E+02	1.72E+02	1.32E+00	2.87E+01	3.00E+01	6.40E-01	3.84E+01	4.7E+01	7.8E-01

Shaded cells indicate hazard quotient greater than 1.

Body Weight = (BW)	1.90E-02	kg	Dose (soil) = (Cs * Is)(H)/BW	Conc = Concentration
Food Ingestion Rate = (If)	3.16E-03	kg/day	Dose (vegetation) = (Cv * If)(H)/BW	LOAEL = Lowest Observed Adverse Effects Concentration
Soil Ingestion Rate = (Is)	1.05E-04	kg/day	Cv = Contaminant concentration in vegetation	NOAEL = No Observed Adverse Effects Concentration
Home Range = (HR)	0.035-0.32	acres	Cs = Contaminant concentration in soil	
Contaminated Area = (CA)	Assume equal to home range		Total Dose = Dose (soil) + Dose (vegetation)	
			H=CA/HR (Assume = to 1)	

APPENDIX B - TABLE 6.3

MOURNING DOVE - CONSERVATIVE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Max Soil Conc. (mg/kg)	Vegetation Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Veget.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
Inorganics									
CADMIUM	1.70E-01	2.36E-01	2.66E-03	2.29E-02	2.56E-02	1.47E+00	6.35E+00	1.7E-02	4.0E-03
LEAD	4.76E+02	8.42E+00	7.46E+00	8.18E-01	8.28E+00	9.91E-01	4.46E+01	8.4E+00	1.9E-01
SELENIUM	2.20E+00	1.21E+00	3.45E-02	1.18E-01	1.52E-01	2.48E-01	8.19E-01	6.1E-01	1.9E-01
ZINC	1.07E+02	6.43E+01	1.68E+00	6.24E+00	7.92E+00	6.61E+01	1.71E+02	1.2E-01	4.6E-02
PAHs									
BENZO(A)ANTHRACENE	1.58E+02	1.35E+00	2.48E+00	1.31E-01	2.61E+00	2.44E+00	2.44E+01	1.1E+00	1.1E-01
BENZO(A)PYRENE	1.87E+02	2.09E+01	2.93E+00	2.03E+00	4.96E+00	2.44E+00	2.44E+01	2.0E+00	2.0E-01
BENZO(B)FLUORANTHENE	3.23E+02	1.00E+02	5.06E+00	9.72E+00	1.48E+01	2.44E+00	2.44E+01	6.0E+00	6.0E-01
BENZO(G,H,I)PERYLENE	1.13E+02	1.06E+02	1.77E+00	1.03E+01	1.20E+01	2.44E+00	2.44E+01	4.9E+00	4.9E-01
BENZO(K)FLUORANTHENE	2.80E+01	2.03E+00	4.39E-01	1.97E-01	6.36E-01	2.44E+00	2.44E+01	2.6E-01	2.6E-02
CHRYSENE	1.71E+02	1.42E+00	2.68E+00	1.38E-01	2.82E+00	2.44E+00	2.44E+01	1.2E+00	1.2E-01
DIBENZO(A,H)ANTHRACENE	2.50E+00	3.25E-01	3.92E-02	3.16E-02	7.07E-02	2.44E+00	2.44E+01	2.9E-02	2.9E-03
INDENO(1,2,3-CD)PYRENE	9.82E+01	1.08E+01	1.54E+00	1.05E+00	2.59E+00	2.44E+00	2.44E+01	1.1E+00	1.1E-01
PYRENE	2.39E+02	1.72E+02	3.75E+00	1.67E+01	2.05E+01	2.44E+00	2.44E+01	8.4E+00	8.4E-01

Shaded cells indicate hazard quotient greater than 1.

Body Weight = (BW)	1.50E-01	kg	Dose (soil) = (Cs * Is)(H)/BW	Conc = Concentration
Food Ingestion Rate = (If)	1.46E-02	kg/day	Dose (vegetation) = (Cv * If)(H)/BW	LOAEL = Lowest Observed Adverse Effects Concentration
Soil Ingestion Rate = (Is)	2.35E-03	kg/day	Cv = Contaminant concentration in vegetation	NOAEL = No Observed Adverse Effects Concentration
Home Range = (HR)	2.56E+03	acres	Cs = Contaminant concentration in soil	
Contaminated Area = (CA)	Assume equal to home range		Total Dose = Dose (soil) + Dose (vegetation)	
			H=CA/HR (Assume = to 1)	

APPENDIX B - TABLE 6.4

SHORT-TAILED SHREW - CONSERVATIVE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Max Soil Conc. (mg/kg)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Invert.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
Inorganics									
CADMIUM	1.70E-01	2.02E+00	9.72E-04	3.74E-01	3.75E-01	9.42E-01	6.90E+00	4.0E-01	5.4E-02
LEAD	4.76E+02	1.16E+02	2.72E+00	2.15E+01	2.43E+01	5.63E+00	1.86E+02	4.3E+00	1.3E-01
SELENIUM	2.20E+00	1.65E+00	1.26E-02	3.06E-01	3.18E-01	2.14E-01	6.60E-01	1.5E+00	4.8E-01
ZINC	1.07E+02	3.96E+02	6.12E-01	7.33E+01	7.39E+01	7.54E+01	2.98E+02	9.8E-01	2.5E-01
PAHs									
BENZO(A)ANTHRACENE	1.58E+02	2.51E+02	9.04E-01	4.65E+01	4.74E+01	6.49E-01	3.84E+01	7.3E+01	1.2E+00
BENZO(A)PYRENE	1.87E+02	2.49E+02	1.07E+00	4.60E+01	4.71E+01	6.49E-01	3.84E+01	7.3E+01	1.2E+00
BENZO(B)FLUORANTHENE	3.23E+02	8.40E+02	1.85E+00	1.55E+02	1.57E+02	6.49E-01	3.84E+01	2.4E+02	4.1E+00
BENZO(G,H,I)PERYLENE	1.13E+02	3.32E+02	6.46E-01	6.14E+01	6.21E+01	6.49E-01	3.84E+01	9.6E+01	1.6E+00
BENZO(K)FLUORANTHENE	2.80E+01	7.28E+01	1.60E-01	1.35E+01	1.36E+01	6.49E-01	3.84E+01	2.1E+01	3.5E-01
CHRYSENE	1.71E+02	3.92E+02	9.78E-01	7.24E+01	7.34E+01	6.49E-01	3.84E+01	1.1E+02	1.9E+00
DIBENZO(A,H)ANTHRACENE	2.50E+00	5.78E+00	1.43E-02	1.07E+00	1.08E+00	6.49E-01	3.84E+01	1.7E+00	2.8E-02
INDENO(1,2,3-CD)PYRENE	9.82E+01	2.81E+02	5.62E-01	5.19E+01	5.25E+01	6.49E-01	3.84E+01	8.1E+01	1.4E+00
PYRENE	2.39E+02	4.18E+02	1.37E+00	7.74E+01	7.87E+01	6.49E-01	3.84E+01	1.2E+02	2.1E+00

Shaded cells indicate hazard quotient greater than 1.

Body Weight = (BW)	1.50E-02	kg	Dose (soil) = (Cs * Is)(H)/BW	Conc = Concentration
Food Ingestion Rate = (If)	2.77E-03	kg/day	Dose (invertebrate) = (Ci * If)(H)/BW	LOAEL = Lowest Observed Adverse Effects Concentration
Soil Ingestion Rate = (Is)	8.58E-05	kg/day	Ci = Contaminant concentration in invertebrate	NOAEL = No Observed Adverse Effects Concentration
Home Range = (HR)	9.60E-01	acres	Cs = Contaminant concentration in soil	
Contaminated Area = (CA)	Assume equal to home range		Total Dose = Dose (soil) + Dose (invertebrate)	
			H=CA/HR (Assume = to 1)	

APPENDIX B - TABLE 6.5

AMERICAN ROBIN - CONSERVATIVE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Max Soil Conc. (mg/kg)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from:		Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients	
			Soil	Invert.				NOAEL	LOAEL
Inorganics									
CADMIUM	1.70E-01	2.02E+00	3.91E-03	2.38E-01	2.42E-01	1.47E+00	6.35E+00	1.6E-01	3.8E-02
LEAD	4.76E+02	1.16E+02	1.10E+01	1.37E+01	2.46E+01	8.74E-01	4.46E+01	2.8E+01	5.5E-01
SELENIUM	2.20E+00	1.65E+00	5.07E-02	1.94E-01	2.45E-01	2.19E-01	8.19E-01	1.1E+00	3.0E-01
ZINC	1.07E+02	3.96E+02	2.46E+00	4.65E+01	4.90E+01	6.61E+01	1.71E+02	7.4E-01	2.9E-01
PAHs									
BENZO(A)ANTHRACENE	1.58E+02	2.51E+02	3.64E+00	2.95E+01	3.31E+01	2.16E+00	2.16E+01	1.5E+01	1.5E+00
BENZO(A)PYRENE	1.87E+02	2.49E+02	4.31E+00	2.92E+01	3.35E+01	2.16E+00	2.16E+01	1.6E+01	1.6E+00
BENZO(B)FLUORANTHENE	3.23E+02	8.40E+02	7.44E+00	9.86E+01	1.06E+02	2.16E+00	2.16E+01	4.9E+01	4.9E+00
BENZO(G,H,I)PERYLENE	1.13E+02	3.32E+02	2.60E+00	3.90E+01	4.16E+01	2.16E+00	2.16E+01	1.9E+01	1.9E+00
BENZO(K)FLUORANTHENE	2.80E+01	7.28E+01	6.45E-01	8.55E+00	9.19E+00	2.16E+00	2.16E+01	4.3E+00	4.3E-01
CHRYSENE	1.71E+02	3.92E+02	3.94E+00	4.60E+01	4.99E+01	2.16E+00	2.16E+01	2.3E+01	2.3E+00
DIBENZO(A,H)ANTHRACENE	2.50E+00	5.78E+00	5.76E-02	6.78E-01	7.35E-01	2.16E+00	2.16E+01	3.4E-01	3.4E-02
INDENO(1,2,3-CD)PYRENE	9.82E+01	2.81E+02	2.26E+00	3.30E+01	3.52E+01	2.16E+00	2.16E+01	1.6E+01	1.6E+00
PYRENE	2.39E+02	4.18E+02	5.50E+00	4.91E+01	5.46E+01	2.16E+00	2.16E+01	2.5E+01	2.5E+00

Shaded cells indicate hazard quotient greater than 1.

Body Weight = (BW)	8.00E-02	kg	Dose (soil) = (Cs * Is)(H)/BW	Conc = Concentration
Food Ingestion Rate = (If)	9.39E-03	kg/day	Dose (invertebrate) = (Ci * If)(H)/BW	LOAEL = Lowest Observed Adverse Effects Concentration
Soil Ingestion Rate = (Is)	1.84E-03	kg/day	Ci = Contaminant concentration in invertebrate	NOAEL = No Observed Adverse Effects Concentration
Home Range = (HR)	0.27-1.04	acres	Cs = Contaminant concentration in soil	
Contaminated Area = (CA)	Assume equal to home range		Total Dose = Dose (soil) + Dose (invertebrate)	
			H=CA/HR (Assume = to 1)	

APPENDIX B - TABLE 6.6

WHITE-FOOTED MOUSE - AVERAGE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Average Soil Conc. (mg/kg)	Vegetation Conc. (mg/kg)	Dose (mg/kg/d) from: Soil	Dose (mg/kg/d) from: Veget.	Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients NOAEL	Hazard Quotients LOAEL
Inorganics									
LEAD	7.03E+01	2.88E+00	1.45E-01	4.89E-01	6.35E-01	5.55E+00	1.86E+02	1.1E-01	3.4E-03
SELENIUM	2.20E+00	1.21E+00	4.54E-03	2.06E-01	2.11E-01	2.11E-01	6.60E-01	1.0E+00	3.2E-01
PAHs									
BENZO(A)ANTHRACENE	4.91E+00	1.72E-01	1.01E-02	2.92E-02	3.93E-02	6.40E-01	3.84E+01	6.1E-02	1.0E-03
BENZO(A)PYRENE	6.35E+00	7.72E-01	1.31E-02	1.31E-01	1.44E-01	6.40E-01	3.84E+01	2.3E-01	3.8E-03
BENZO(B)FLUORANTHENE	1.01E+01	3.14E+00	2.09E-02	5.34E-01	5.55E-01	6.40E-01	3.84E+01	8.7E-01	1.4E-02
BENZO(G,H,I)PERYLENE	3.73E+00	1.87E+00	7.69E-03	3.17E-01	3.25E-01	6.40E-01	3.84E+01	5.1E-01	8.5E-03
BENZO(K)FLUORANTHENE	1.32E+00	1.47E-01	2.72E-03	2.49E-02	2.76E-02	6.40E-01	3.84E+01	4.3E-02	7.2E-04
CHRYSENE	5.50E+00	1.84E-01	1.14E-02	3.12E-02	4.26E-02	6.40E-01	3.84E+01	6.7E-02	1.1E-03
DIBENZO(A,H)ANTHRACENE	2.75E-01	3.57E-02	5.67E-04	6.07E-03	6.64E-03	6.40E-01	3.84E+01	1.0E-02	1.7E-04
INDENO(1,2,3-CD)PYRENE	3.79E+00	4.17E-01	7.83E-03	7.09E-02	7.87E-02	6.40E-01	3.84E+01	1.2E-01	2.0E-03
PYRENE	6.76E+00	4.87E+00	1.40E-02	8.27E-01	8.41E-01	6.40E-01	3.84E+01	1.3E+00	2.2E-02

Shaded cells indicate hazard quotient greater than 1.

Body Weight = (BW)	1.90E-02	kg	Dose (soil) = (Cs * Is)(H)/BW
Food Ingestion Rate = (If)	3.23E-03	kg/day	Dose (vegetation) = (Cv * If)(H)/BW
Soil Ingestion Rate = (Is)	3.92E-05	kg/day	Cv = Contaminant concentration in vegetation
Home Range = (HR)	0.035-0.32	acres	Cs = Contaminant concentration in soil
Contaminated Area = (CA)	Assume equal to home range		Total Dose = Dose (soil) + Dose (vegetation)
			H=CA/HR (Assume = to 1)

Conc = Concentration
LOAEL = Lowest Observed Adverse Effects Concentration
NOAEL = No Observed Adverse Effects Concentration

APPENDIX B - TABLE 6.7

MOURNING DOVE - AVERAGE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Average Soil Conc. (mg/kg)	Vegetation Conc. (mg/kg)	Dose (mg/kg/d) from:		Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients	
			Soil	Veget.				NOAEL	LOAEL
Inorganics									
LEAD	7.03E+01	2.88E+00	4.84E-01	3.05E-01	7.88E-01	9.91E-01	4.46E+01	8.0E-01	1.8E-02
SELENIUM	2.20E+00	1.21E+00	1.51E-02	1.28E-01	1.44E-01	2.48E-01	8.19E-01	5.8E-01	1.8E-01
PAHs									
BENZO(A)ANTHRACENE	4.91E+00	1.72E-01	3.38E-02	1.82E-02	5.19E-02	2.44E+00	2.44E+01	2.1E-02	2.1E-03
BENZO(A)PYRENE	6.35E+00	7.72E-01	4.37E-02	8.17E-02	1.25E-01	2.44E+00	2.44E+01	5.1E-02	5.1E-03
BENZO(B)FLUORANTHENE	1.01E+01	3.14E+00	6.97E-02	3.32E-01	4.02E-01	2.44E+00	2.44E+01	1.6E-01	1.6E-02
BENZO(G,H,I)PERYLENE	3.73E+00	1.87E+00	2.56E-02	1.98E-01	2.23E-01	2.44E+00	2.44E+01	9.1E-02	9.1E-03
BENZO(K)FLUORANTHENE	1.32E+00	1.47E-01	9.07E-03	1.55E-02	2.46E-02	2.44E+00	2.44E+01	1.0E-02	1.0E-03
CHRYSENE	5.50E+00	1.84E-01	3.78E-02	1.95E-02	5.73E-02	2.44E+00	2.44E+01	2.3E-02	2.3E-03
DIBENZO(A,H)ANTHRACENE	2.75E-01	3.57E-02	1.89E-03	3.78E-03	5.67E-03	2.44E+00	2.44E+01	2.3E-03	2.3E-04
INDENO(1,2,3-CD)PYRENE	3.79E+00	4.17E-01	2.61E-02	4.42E-02	7.02E-02	2.44E+00	2.44E+01	2.9E-02	2.9E-03
PYRENE	6.76E+00	4.87E+00	4.65E-02	5.15E-01	5.62E-01	2.44E+00	2.44E+01	2.3E-01	2.3E-02

Shaded cells indicate hazard quotient greater than 1.

Body Weight = (BW)	1.50E-01	kg	Dose (soil) = (Cs * Is)(H)/BW	Conc = Concentration
Food Ingestion Rate = (If)	1.59E-02	kg/day	Dose (vegetation) = (Cv * If)(H)/BW	LOAEL = Lowest Observed Adverse Effects Concentration
Soil Ingestion Rate = (Is)	1.03E-03	kg/day	Cv = Contaminant concentration in vegetation	NOAEL = No Observed Adverse Effects Concentration
Home Range = (HR)	2.56E+03	acres	Cs = Contaminant concentration in soil	
Contaminated Area = (CA)	Assume equal to home range		Total Dose = Dose (soil) + Dose (vegetation)	
			H=CA/HR (Assume = to 1)	

APPENDIX B - TABLE 6.8

SHORT-TAILED SHREW - AVERAGE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Average Soil Conc. (mg/kg)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from:		Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients	
			Soil	Invert.				NOAEL	LOAEL
Inorganics									
LEAD	7.03E+01	2.49E+01	1.21E-01	4.70E+00	4.82E+00	5.63E+00	1.86E+02	8.6E-01	2.6E-02
SELENIUM	2.20E+00	1.65E+00	3.78E-03	3.12E-01	3.16E-01	2.14E-01	6.60E-01	1.5E+00	4.8E-01
PAHs									
BENZO(A)ANTHRACENE	4.91E+00	7.80E+00	8.42E-03	1.47E+00	1.48E+00	6.49E-01	3.84E+01	2.3E+00	3.9E-02
BENZO(A)PYRENE	6.35E+00	8.45E+00	1.09E-02	1.60E+00	1.61E+00	6.49E-01	3.84E+01	2.5E+00	4.2E-02
BENZO(B)FLUORANTHENE	1.01E+01	2.63E+01	1.74E-02	4.98E+00	4.99E+00	6.49E-01	3.84E+01	7.7E+00	1.3E-01
BENZO(G,H,I)PERYLENE	3.73E+00	1.10E+01	6.40E-03	2.07E+00	2.08E+00	6.49E-01	3.84E+01	3.2E+00	5.4E-02
BENZO(K)FLUORANTHENE	1.32E+00	3.43E+00	2.26E-03	6.48E-01	6.50E-01	6.49E-01	3.84E+01	1.0E+00	1.7E-02
CHRYSENE	5.50E+00	1.26E+01	9.44E-03	2.38E+00	2.39E+00	6.49E-01	3.84E+01	3.7E+00	6.2E-02
DIBENZO(A,H)ANTHRACENE	2.75E-01	6.35E-01	4.72E-04	1.20E-01	1.20E-01	6.49E-01	3.84E+01	1.9E-01	3.1E-03
INDENO(1,2,3-CD)PYRENE	3.79E+00	1.08E+01	6.51E-03	2.05E+00	2.06E+00	6.49E-01	3.84E+01	3.2E+00	5.4E-02
PYRENE	6.76E+00	1.18E+01	1.16E-02	2.23E+00	2.25E+00	6.49E-01	3.84E+01	3.5E+00	5.9E-02

Shaded cells indicate hazard quotient greater than 1.

Body Weight = (BW)	1.50E-02	kg	Dose (soil) = (Cs * Is)(H)/BW	Conc = Concentration
Food Ingestion Rate = (If)	2.83E-03	kg/day	Dose (invertebrate) = (Ci * If)(H)/BW	LOAEL = Lowest Observed Adverse Effects Concentration
Soil Ingestion Rate = (Is)	2.57E-05	kg/day	Ci = Contaminant concentration in invertebrate	NOAEL = No Observed Adverse Effects Concentration
Home Range = (HR)	9.60E-01	acres	Cs = Contaminant concentration in soil	
Contaminated Area = (CA)	Assume equal to home range		Total Dose = Dose (soil) + Dose (invertebrate)	
			H=CA/HR (Assume = to 1)	

APPENDIX B - TABLE 6.9

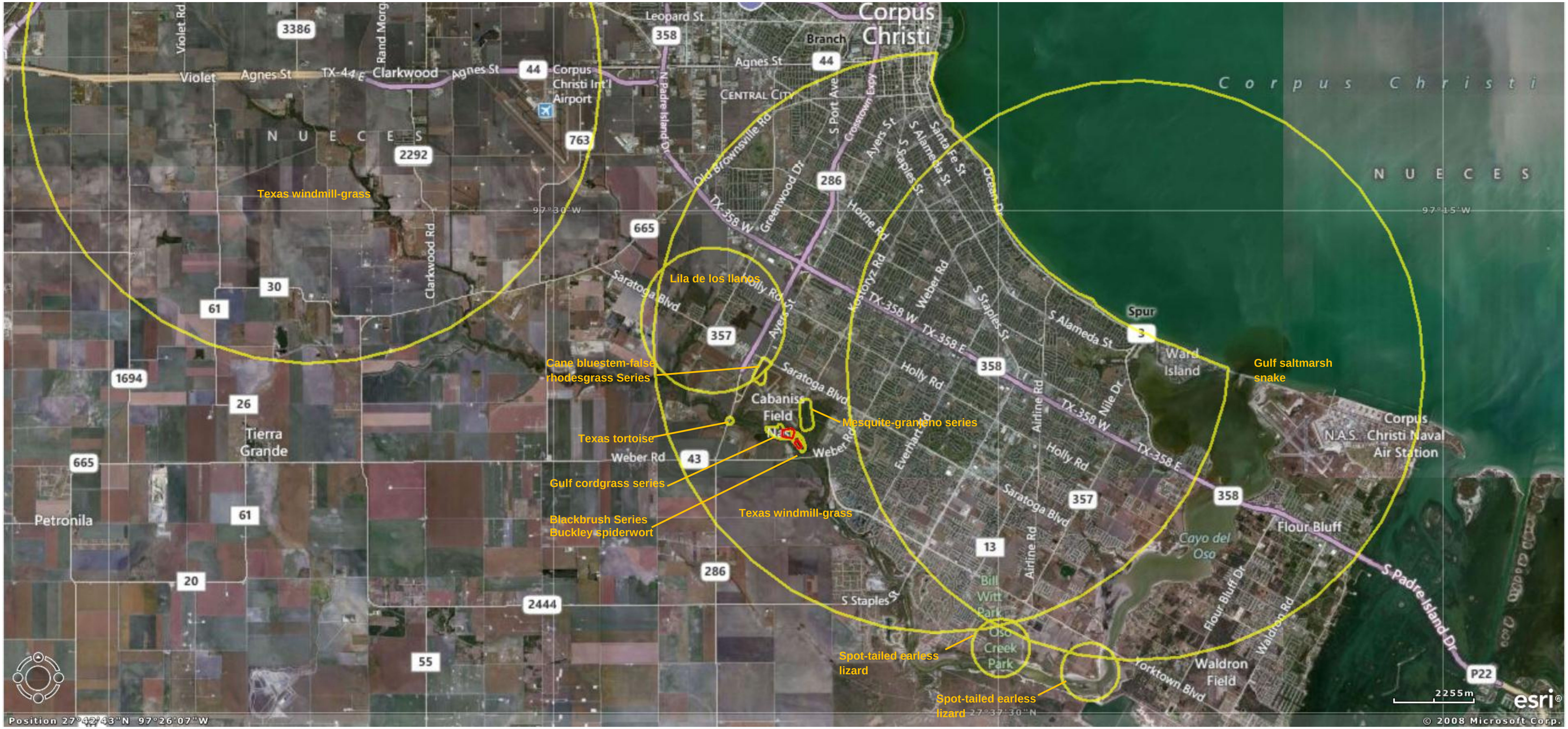
AMERICAN ROBIN - AVERAGE INPUTS
TERRESTRIAL WILDLIFE MODEL ECOLOGICAL EFFECTS QUOTIENT CALCULATION - SURFACE SOIL
SKEET RANGE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Chemical	Average Soil Conc. (mg/kg)	Invertebrate Conc. (mg/kg)	Dose (mg/kg/d) from:		Total Dose (mg/kg/d)	NOAEL (mg/kg/d)	LOAEL (mg/kg/d)	Hazard Quotients	
			Soil	Invert.				NOAEL	LOAEL
Inorganics									
LEAD	7.03E+01	2.49E+01	6.32E-01	3.27E+00	3.90E+00	8.74E-01	4.46E+01	4.5E+00	8.7E-02
SELENIUM	2.20E+00	1.65E+00	1.98E-02	2.17E-01	2.37E-01	2.19E-01	8.19E-01	1.1E+00	2.9E-01
PAHs									
BENZO(A)ANTHRACENE	4.91E+00	7.80E+00	4.41E-02	1.03E+00	1.07E+00	2.16E+00	2.16E+01	5.0E-01	5.0E-02
BENZO(A)PYRENE	6.35E+00	8.45E+00	5.71E-02	1.11E+00	1.17E+00	2.16E+00	2.16E+01	5.4E-01	5.4E-02
BENZO(B)FLUORANTHENE	1.01E+01	2.63E+01	9.10E-02	3.46E+00	3.55E+00	2.16E+00	2.16E+01	1.6E+00	1.6E-01
BENZO(G,H,I)PERYLENE	3.73E+00	1.10E+01	3.35E-02	1.44E+00	1.47E+00	2.16E+00	2.16E+01	6.8E-01	6.8E-02
BENZO(K)FLUORANTHENE	1.32E+00	3.43E+00	1.19E-02	4.51E-01	4.63E-01	2.16E+00	2.16E+01	2.1E-01	2.1E-02
CHRYSENE	5.50E+00	1.26E+01	4.95E-02	1.66E+00	1.71E+00	2.16E+00	2.16E+01	7.9E-01	7.9E-02
DIBENZO(A,H)ANTHRACENE	2.75E-01	6.35E-01	2.47E-03	8.34E-02	8.59E-02	2.16E+00	2.16E+01	4.0E-02	4.0E-03
INDENO(1,2,3-CD)PYRENE	3.79E+00	1.08E+01	3.41E-02	1.43E+00	1.46E+00	2.16E+00	2.16E+01	6.8E-01	6.8E-02
PYRENE	6.76E+00	1.18E+01	6.07E-02	1.55E+00	1.62E+00	2.16E+00	2.16E+01	7.5E-01	7.5E-02

Shaded cells indicate hazard quotient greater than 1.

Body Weight = (BW)	8.00E-02	kg	Dose (soil) = (Cs * Is)(H)/BW	Conc = Concentration
Food Ingestion Rate = (If)	1.05E-02	kg/day	Dose (invertebrate) = (Ci * If)(H)/BW	LOAEL = Lowest Observed Adverse Effects Concentration
Soil Ingestion Rate = (Is)	7.19E-04	kg/day	Ci = Contaminant concentration in invertebrate	NOAEL = No Observed Adverse Effects Concentration
Home Range = (HR)	0.27-1.04	acres	Cs = Contaminant concentration in soil	
Contaminated Area = (CA)	Assume equal to home range		Total Dose = Dose (soil) + Dose (invertebrate)	
			H=CA/HR (Assume = to 1)	

Locations of Observations of Threatened, Endangered, and Rare Species
In Oso Creek Northwest USGS Quadrangle
As Provided by the Texas Natural Diversity Database



Yellow polygon: Combination of the geographic location of the reported observation and the locational uncertainty of the observation
Red polygon: Location of Incinerator Disposal Site and Skeet Range.

Element Occurrence Record

Scientific Name: Acacia rigidula series

Common Name: Blackbrush Series

Global Rank: G5 **State Rank:** S5

Occurrence #: 14 **Eo Id:** 6888

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Federal Status:

Location Information:

Directions:

CABANISS NAVAL AUXILIARY LANDING FIELD, STEEP SLOPES ALONG NORTH BANK OF OSO CREEK, CA. 0.2-0.5 MILE NORTHWEST OF STATE ROUTE 43 BRIDGE; SOUTH EDGE OF INSTALLATION

Survey Information:

First Observation: **Survey Date:** 1992-06-16 **Last Observation:** 1992-06-16

Eo Type: **Eo Rank:** D **Eo Rank Date:** 1992-06-16

Observed Area:

Comments:

General Description: DENSE MIXED EVERGREEN-DECIDUOUS SHRUBLAND ON HEAVY CLAY SOILS; ACACIA BERLANDIERI, KIRWINSKIA HUMBOLDTIANA, BUMELIA CELASTRINA, LYCIUM BERLANDIERI, YUCCA TORREYI COMMON; GOUND LAYER MOSTLY CENCHRUS CILIARIS

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: NONE; VERY BRIEF PLANT LIST IN REPORT TO NAVY

Reference:

Citation:

CARR, W.R. 1992. FIELD SURVEY OF NAVAL AUXILIARY LANDING FIELD CABANISS, 16 JUNE 1992.

Specimen:

Element Occurrence Record

Scientific Name: Bothriochloa barbinodis-chloris pluriflora series

Occurrence #: 3 **Eo Id:** 7048

Track Status: Track all extant and selected historical EOs

Common Name: Cane Bluestem-false Rhodesgrass Series

TX Protection Status:

Global Rank: G2? **State Rank:** S3

Federal Status:

Location Information:

Directions:

CABANISS NAVAL AUXILIARY LANDING FIELD, WEST SIDE OF NORTH END OF NORTH-SOUTH RUNWAY, NORTHWEST CORNER OF INSTALLATION

Survey Information:

First Observation: **Survey Date:** 1992-06-16 **Last Observation:** 1992-06-16

Eo Type: **Eo Rank:** D **Eo Rank Date:** 1992-06-16

Observed Area:

Comments:

General Description: GRASSLAND DOMINATED BY INTRODUCED NON-NATIVE GRASSES; HEAVY CLAY SOILS PROBABLY IN CULTIVATION BEFORE BASE ESTABLISHED IN 1940'S

Comments: MAY BE ASSIGNED TO SOME OTHER SERIES

Protection Comments:

Management Comments:

Data:

EO Data: NONE; PLANT LIST IN REPORT TO NAVY

Reference:

Citation:

CARR, W.R. 1992. FIELD SURVEY OF NAVAL AUXILIARY LANDING FIELD CABANISS, 16 JUNE 1992.

Specimen:

Element Occurrence Record

Scientific Name: Chloris texensis

Occurrence #: 28 **Eo Id:** 7590

Track Status: Track all extant and selected historical EOs

Common Name: Texas windmill-grass

TX Protection Status:

Global Rank: G2 **State Rank:** S2

Federal Status:

Location Information:

Directions:

CORPUS CHRISTI, IN WASTE PLACE ON SOUTH SIDE

Survey Information:

First Observation: **Survey Date:** **Last Observation:** 1973-09-02

Eo Type: **Eo Rank:** **Eo Rank Date:**

Observed Area:

Comments:

General Description: CLAY

Comments:

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

Specimen:

CORPUS CHRISTI MUSEUM/HERBARIUM. 1973. F.B. JONES #7833, SPECIMEN # 77D230 CC. 2 SEPTEMBER 1973.

Element Occurrence Record

Scientific Name: Chloris texensis

Occurrence #: 29 **Eo Id:** 3579

Common Name: Texas windmill-grass

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G2 **State Rank:** S2

Federal Status:

Location Information:

Directions:

ABOUT 6 MILES WEST OF CORPUS CHRISTI ON ROAD SHOULDER

Survey Information:

First Observation: **Survey Date:** **Last Observation:** 1959-07-09

Eo Type: **Eo Rank:** **Eo Rank Date:**

Observed Area:

Comments:

General Description: CLAY

Comments:

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

Specimen:

CORPUS CHRISTI MUSEUM/HERBARIUM. 1959. F.B. JONES #3311, SPECIMEN # 770229 CC. 9 JULY 1959.

2013-04-11

Element Occurrence Record

Scientific Name: Echeandia chandleri

Common Name: lila de los llanos

Global Rank: G2G3 **State Rank:** S2S3

Occurrence #: 26 **Eo Id:** 2174

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Federal Status:

Location Information:

Directions:

ABOUT 1.5 MILES NORTHWEST OF CABANISS FIELD IN BRUSHY PASTURE

Survey Information:

First Observation: 1973-09-30 **Survey Date:** **Last Observation:** 1987-09-30

Eo Type: **Eo Rank:** **Eo Rank Date:**

Observed Area:

Comments:

General Description: CLAY

Comments:

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

O'Brien, Ruth. 1988. Letter To Jackie Poole, TPWD Botanist, of 3 December 1988 concerning an Ambrosia cheiranthifolia occurrence along the road to St. James Cemetery from highway 77 and inside the cemetery gate, and a list of specimens for Ambrosia Cheiranthifolia and Anthericum Chandleri in the Corpus Christi Museum.

Specimen:

CORPUS CHRISTI MUSEUM HERBARIUM. 1973. F.B. JONES #7918, SPECIMEN # ? CC. 30 SEPTEMBER 1973.

Element Occurrence Record

Scientific Name: Gopherus berlandieri

Occurrence #: 18 **Eo Id:** 3865

Track Status: Track all extant and selected historical EOs

Common Name: Texas Tortoise

TX Protection Status: T

Global Rank: G4 **State Rank:** S2 **Federal Status:**

Location Information:

Directions:

CORPUS CHRISTI, TX HIGHWAY 286 AT OSO CREEK

Survey Information:

First Observation: **Survey Date:** **Last Observation:** 1961-02-10

Eo Type: **Eo Rank:** **Eo Rank Date:**

Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

Elliott, Lee. 1994. Memorandum to Dorinda Sullivan dated December 2, 1994 concerning Texas A&M-Kingsville Vertebrate Specimens Catalogue.

Specimen:

TEXAS A & M UNIVERSITY-KINGSVILLE--VERTEBRATE COLLECTION. 1961. UNKNOWN COLLECTOR, SPECIMEN # 478 AI. 10 FEBRUARY 1961.

Element Occurrence Record

Scientific Name: Holbrookia lacerata

Occurrence #: 58 **Eo Id:** 9529

Track Status: Track all extant and selected historical EOs

Common Name: Spot-tailed Earless Lizard

TX Protection Status:

Global Rank: G3G4 **State Rank:** S1S2

Federal Status:

Location Information:

Directions:

Corpus Christi, Oso Creek in the vicinity of Rodd Field.

Survey Information:

First Observation: 1962 **Survey Date:** 2009-03-18 **Last Observation:** 1980

Eo Type: **Eo Rank:** E **Eo Rank Date:** 1980

Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: 1962: A specimen was collected. 1980: A specimen was collected. 18 Mar 2009: Area was surveyed; none were found.

Reference:

Citation:

Duran, Mike and R. W. Axtell. 2010. A rangewide inventory and habitat model for the spot-tailed earless lizard (Holbrookia lacerata). Horned Lizard License Plate Fund Contract # 199464. Submitted to Texas Parks and Wildlife Dept. 30 November 2010. 35 pp with additional files.

Ralph Axtell. 1998. Holbrookia lacerata Cope. Interpretive Atlas of Texas Lizards, No. 20. Self published. 12 pp.

Specimen:

Texas A&M University-Kingsville, Kingsville, TX; collector unknown, 1962, TAIC.

Texas A&M University-Corpus Christi, TX; J. Miller, 1980, TAMU-CC.

Element Occurrence Record

Scientific Name: Nerodia clarkii

Occurrence #: 14 **Eo Id:** 5853

Track Status: Track all extant and selected historical EOs

Common Name: Gulf Saltmarsh Snake

TX Protection Status:

Global Rank: G4 **State Rank:** S4

Federal Status:

Location Information:

Directions:

CORPUS CHRISTI NEAR OSO BAY

Survey Information:

First Observation: **Survey Date:** **Last Observation:**

Eo Type: **Eo Rank:** **Eo Rank Date:**

Observed Area:

Comments:

General Description:

Comments: NO DATE GIVEN, BUT BETWEEN 1976 AND 1980

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

Specimen:

TEXAS A & M UNIVERSITY-KINGSVILLE--VERTEBRATE COLLECTION. NO DATE. A.H. CHANEY, SPECIMEN # 4516 AI.

Element Occurrence Record

Scientific Name: Prosopis glandulosa-celtis pallida series
Occurrence #: 3 **Eo Id:** 6694
Common Name: Mesquite-granjeno Series
Track Status: Track all extant and selected historical EOs
TX Protection Status:
Global Rank: G2? **State Rank:** S5
Federal Status:

Location Information:

Directions:

CABANISS NAVAL AUXILIARY LANDING FIELD, ALONG PATROL ROAD LEADING SOUTH FROM GATE JSUT EAST OF R.C. COLA WAREHOUSE, WEST SIDE OF DRAINAGE DITCH, EAST OF EAST END OF EAST-WEST RUNWAY

Survey Information:

First Observation:
Survey Date: 1991-09-26
Last Observation: 1991-09-26
Eo Type:
Eo Rank: D
Eo Rank Date: 1991-09-26
Observed Area:

Comments:

General Description: LOW DIVERSITY DISTURBANCE TYPE, MOSTLY MESQUITE AND HACKBERRY, PRICKLY PEAR IN UNDERSTORY, NON-NATIVE GRASSES IN GROUND LAYER

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN REPORT TO NAVY

Reference:

Citation:

CARR, W.R. 1991. SURVEY OF RARE, THREATENED, AND ENDANGERED PLANTS ON U.S. NAVY PROPERTY IN SOUTH TEXAS; INTERIM REPORT.

Specimen:

Element Occurrence Record

Scientific Name: Spartina spartinae series

Common Name: Gulf Cordgrass Series

Global Rank: G3 **State Rank:** S4

Occurrence #: 3 **Eo Id:** 5797

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Federal Status:

Location Information:

Directions:

TERRACES ON NORTH BANK OF OSO CREEK, SOUTH EDGE OF CABANISS NAVAL AUXILIARY LANDING FIELD, EAST OF STATE ROUTE 286, NORTH OF STATE ROUTE 43

Survey Information:

First Observation: **Survey Date:** 1992-06-16 **Last Observation:** 1992-06-16

Eo Type: **Eo Rank:** C **Eo Rank Date:** 1992-06-16

Observed Area:

Comments:

General Description: MOIST HEAVY SLIGHTLY SALINE CLAY SOILS, STANDING WATER AFTER RAINS; SPARTINAE SPARTINAE, DISTICHLIS SPICATA, SPOROBOLUS VIRGINICUS, SCIRPUS MARITIMUS COMMON, WITH PATCHES OF HALOPHYTIC FORBS

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: NONE; PLANT LIST IN REPORT TO NAVY

Reference:

Citation:

CARR, W.R. 1992. FIELD SURVEY OF NAVAL AUXILIARY LANDING FIELD CABANISS, 16 JUNE 1992.

Specimen:

Element Occurrence Record

Scientific Name: Tradescantia buckleyi

Occurrence #: 1 **Eo Id:** 8510

Track Status: Track all extant and selected historical EOs

Common Name: Buckley spiderwort

TX Protection Status:

Global Rank: G3 **State Rank:** S2

Federal Status:

Location Information:

Directions:

Naval Auxiliary Landing Field Cabaniss. North side of Oso Creek, south side of perimeter road in southeast corner of facility. Ca. 1.5-1.6 air miles south/southeast of junction of St. Rt. 357 (Saratoga Blvd.) and St. Rt. 286 (Ayers St.).

Survey Information:

First Observation: 1997-04-16 **Survey Date:** 1997-04-16 **Last Observation:** 1997-04-16

Eo Type: **Eo Rank:** B **Eo Rank Date:** 1997-04-16

Observed Area:

Comments:

General Description: Forming colonies under Acacia rigidula, Forestiera angustifolia and other shrubs in fairly dense shrubland on clay slope.

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: 16 April 1997 - Locally common, 100-200 plants in flower. Forming colonies.

Reference:

Citation:

Specimen:

University of Texas Herbarium. 1997. W.R. Carr (16083) and David Wolfe. Specimen # none. 16 April 1997. TEX-LL.

APPENDIX J

MUNITIONS AND EXPLOSIVES OF CONCERN GEOPHYSICAL INVESTIGATION

Comprehensive Long-term Environmental Action Navy

CONTRACT NUMBER N62467-04-D-0055

Rev. 1
July 2013

Final

Munitions and Explosives of Concern Geophysical Investigation Report

Incinerator Disposal Site

Naval Auxiliary Landing Field Cabaniss
Corpus Christi, Texas

Contract Task Order 0135

July 2013

NAVFAC
Naval Facilities Engineering Command
NAVFAC SOUTHEAST
NAS Jacksonville
Jacksonville, Florida 32212-0030

TETRA TECH

FINAL
MUNITIONS AND EXPLOSIVES OF CONCERN
GEOPHYSICAL INVESTIGATION REPORT

INCINERATOR DISPOSAL SITE

NAVAL AUXILIARY LANDING FIELD CABANISS
CORPUS CHRISTI, TEXAS

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Naval Facilities Engineering Command
Southeast
NAS Jacksonville
Jacksonville, Florida 32212-0030

Submitted by:
Tetra Tech, Inc.
661 Anderson Drive, Foster Plaza 7
Pittsburgh, Pennsylvania 15220

CONTRACT NUMBER N62467-04-D-0055
CONTRACT TASK ORDER 0135

JULY 2013

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MUNITIONS AND EXPLOSIVES OF CONCERN GEOPHYSICAL REPORT
Incinerator Disposal Site
NALF Cabaniss, Corpus, Christi, Texas

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Incinerator Disposal Site
NALF Cabaniss, Corpus, Christi, Texas

TABLES

NUMBER

(a) Tables listed are located at the end of the section in which they are referenced.

FIGURES

NUMBER

(a) Figures listed are located at the end of the section in which they are referenced.

ACRONYMS

AICUZ	Air Installation Compatible Use Zone
AOC	Area of Concern
bgs	Below ground surface
BIP	Blow-in-Place
CAD	Cartridge actuated device
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLEAN	Comprehensive Long-term Environmental Action Navy
CTO	Contract Task Order
°F	Degrees Fahrenheit
DDESB	Department of Defense Explosive Safety Board
DERP	Defense Environmental Restoration Program
DGM	Digital geophysical mapping
DGPS	Differential global positioning system
DID	Data Item Description
DoD	Department of Defense
DPT	Direct push technology
EM	Electromagnetic
ESS	Explosive Safety Submission
FCR	Field Change Request
FM	Farm-to-Market
FY	Fiscal Year
GIS	Geographic information system
GPS	Global positioning system
GSA	General Services Administration
GSV	Geophysical System Verification
HASP	Health and Safety Plan
IAS	Initial Assessment Study
IP	In-phase
ISO	Industry standard object
IVS	Instrument verification strip
MC	Munitions constituents
MDAS	Material Documented as Safe
MEC	Munitions and Explosives of Concern
mm	Millimeter
MPPEH	Material potentially presenting an explosive hazard

ACRONYMS, Continued

MRP	Munitions Response Program
MRS	Munitions Response Site
MSL	Mean sea level
NAAS	Naval Auxiliary Air Station
NAD	North American Datum
NALF	Naval Auxiliary Landing Field
NAS	Naval Air Station
NASCC	Naval Air Station Corpus Christi
NAVFAC SE	Naval Facilities Engineering Command Southeast
NEESA	Naval Energy and Environmental Support Activity
NGS	National Geodetic Survey
NOSSA	Naval Ordnance Safety and Security Activity
NOSSAINST	NOSSA Instruction
OE	Ordnance and Explosives
OLF	Outlying field
PA	Preliminary Assessment
PAD	Propellant actuated device
POC	Point of Contact
QC	Quality control
QP	Quadrature-phase
RI	Remedial investigation
RPM	Remedial Project Manager
RTK	Real Time Kinematic
RTN	Real Time Network
SARA	Superfund Amendments and Reauthorization Act
SI	Site inspection
SUXOS	Senior UXO Supervisor
TCRA	Time-Critical Removal Action
Tetra Tech	Tetra Tech, Inc.
TP	Technical Paper
TRRP	Texas Risk Reduction Program
UFP-SAP	Uniform Federal Policy Sampling and Analysis Plan
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USEPA	United States Environmental Protection Agency

ACRONYMS, Continued

UXO	Unexploded ordnance
UXOQCS	UXO Quality Control Specialist
UXOSO	UXO Safety Officer
VSP	Visual Sample Plan
WWII	World War II

1.0 INTRODUCTION

Tetra Tech, Inc. (Tetra Tech) was contracted by the Department of the Navy, Naval Facilities Engineering Command Southeast (NAVFAC SE) to perform a remedial investigation (RI) and associated reporting for the former Incinerator Disposal Site located at Naval Auxiliary Landing Field (NALF) Cabaniss, Corpus Christi, Texas. Figure 1-1 shows the general location of NALF Cabaniss and the location of the former Incinerator Disposal Site at NALF Cabaniss. This work was performed under Contract Task Order (CTO) No. 0135 under the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract No. N62467-04-D-0055.

1.1 PURPOSE OF REPORT

This Munitions and Explosives of Concern (MEC) geophysical report describes activities, results, and associated recommendations to assess MEC and material potentially presenting an explosive hazard (MPPEH) at a Munitions Response Site (MRS) referred to as the Incinerator Disposal Site, located at the NALF Cabaniss, Corpus Christi, Texas (Figure 1-1). This report summarizes unexploded ordnance (UXO) detector-aided (analog geophysical) and digital geophysical mapping (DGM) survey work performed by Tetra Tech as part of a RI of the Incinerator Disposal Site. The RI was performed in accordance with the RI Uniform Federal Policy Sampling and Analysis Plan (UFP-SAP) dated October, 2010.

A site inspection (SI) was performed by Tetra Tech in 2008, and numerous MEC and MPPEH items were discovered during this SI (Tetra Tech NUS, 2009a). Based on these discoveries, it was likely that more MEC and MPPEH were present in areas that were not surveyed in the SI. This MEC geophysical report addresses further investigation of MEC and MPPEH based on the SI findings.

1.2 SCOPE OF WORK

Field activities included an UXO detector-aided survey of the site. The scope of the MEC RI UFP-SAP included investigating the current site boundaries for MEC and MPPEH, and if MEC or MPPEH was discovered within 100 feet of a boundary, expanding the investigation until a 100-foot buffer from the last discovered MEC or MPPEH item was achieved. No expansion of the current site boundary was determined necessary to meet this requirement. All discovered MEC or MPPEH items were handled, treated, and disposed of according to the approved Explosive Safety Submission (ESS) in the UFP-SAP.

The MEC RI work was based on Department of Defense (DoD) and United States Environmental Protection Agency (USEPA) Guidance for Performing Response Actions on Military Ranges, Navy

Munitions Response Program Guidance, Defense Environmental Restoration Program (DERP) Management Guidance, and applicable United States Army Corps of Engineers (USACE) guidance on ordnance and explosive response actions.

The scope of this MEC RI report is to present and evaluate survey results and to evaluate the potential explosive safety hazards/risks to the public associated with the site. This qualitative assessment was based on historical information, the 2008 SI, and the results of this MEC RI.

1.3 REGULATORY FRAMEWORK

The regulatory process for managing Navy Munitions Response Program (MRP) sites is guided by a complex mixture of federal, state, and local laws, as well as DoD and Navy regulations and guidance. The key legislation, policy, and guidance directing the program includes, but is not limited to, the following:

- Navy MRP Guidance, which states that munitions response will be conducted "in accordance with, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 and the National Oil and Hazardous Substances Pollution Contingency Plan."

- Management Guidance for the DERP. The history of the DERP dates back to the Superfund Amendments and Reauthorization Act (SARA) of 1986. The scope of the DERP is defined in 10 United States Code (U.S.C.) 2701(b), which states the following:

  > "Goals of the program shall include the following: (1) The identification, investigation, research and development, and cleanup of contamination from hazardous substances, and pollutants and contaminants, (2) Correction of other environmental damage (such as detection and disposal of unexploded ordnance) which creates an imminent and substantial endangerment to the public health or welfare or to the environment…"

The Fiscal Year (FY) 2002 National Defense Authorization Act (Sections 311 to 312) reinforced DoD's 2001 DERP Management Guidance by tasking the DoD to develop and maintain an inventory of defense sites that are known or suspected to contain MEC and munitions constituents (MC). Section 311 requires DoD to develop a protocol for prioritizing defense sites for response activities in consultation with states and tribes. Section 312 requires DoD to create a separate program element to ensure that DoD can identify and track munitions response funding. The 2001 Management Guidance for the DERP and National Defense Authorization Act of FY 2002, described here, established the MRP. The Navy baseline inventory of sites was completed in FY 2002 and was used to establish the sites/Areas of Concern

(AOCs) where Preliminary Assessments (PAs) were needed to further evaluate the potential for MEC and MC.

1.4 REPORT ORGANIZATION

The following information is contained in this document:

Section 1.0 discusses the purpose of the report, presents a brief MRS description and RI scope information.

Section 2.0 discusses the facility background.

Section 3.0 discusses the site-specific background and physical /environmental characteristics.

Section 4.0 discusses the general MEC RI geophysical investigation methodology.

Section 5.0 discusses the MEC RI geophysical investigation results.

Section 6.0 presents MEC geophysical investigation conclusions and recommendations.

The following appendices are included in this report and provide technical information compiled during the RI:

- **Appendix A**: Photographic Log
- **Appendix B**: UXO Detector-Aided Survey Field Forms and ESS
- **Appendix C:** Digital Geophysical Mapping Field Forms and Quality Control (QC) Test Results
- **Appendix D:** MEC Data Usability Assessment

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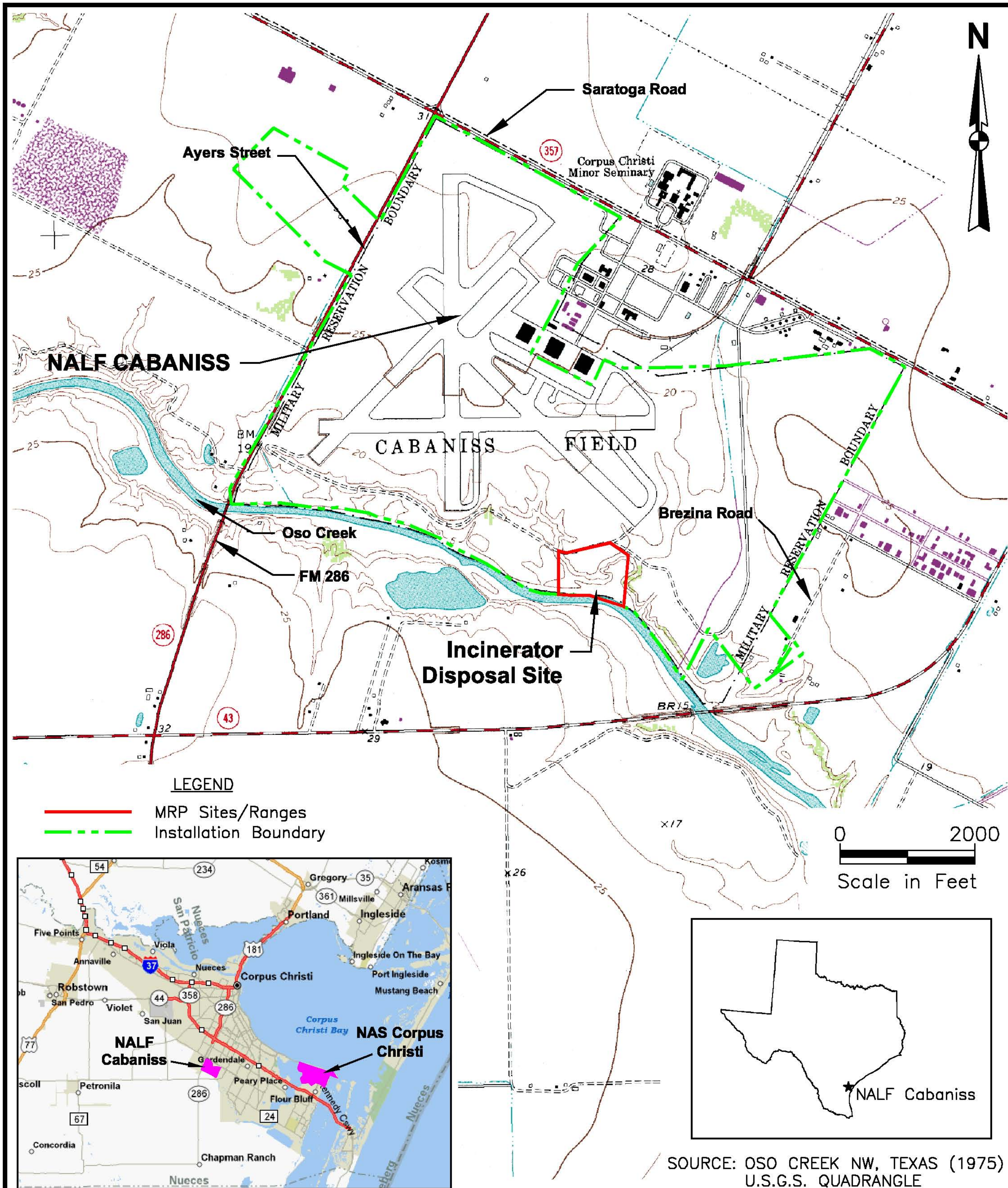


DRAWN BY GS / DATE 1/30/12	NAVFAC	AREA LOCATION MAP INCINERATOR DISPOSAL SITE NALF CABANISS CORPUS CHRISTI, TEXAS	CONTRACT NO. 112G01821
CHECKED BY LB / DATE 1/30/12			OWNER NO. 0135
REVISED BY / DATE			APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO. FIGURE 1–1 / REV. 0

2.0 FACILITY BACKGROUND

2.1 FACILITY BACKGROUND

2.1.1 Facility Location

NALF Cabaniss is located on the eastern side of Nueces County, Texas, and lies approximately eight miles west of Naval Air Station Corpus Christi (NASCC). The installation is immediately bounded on the east by Brezina Road, on the west by Ayers Street and Farm-to-Market (FM) 286, to the north by Saratoga Road, and to the south by Oso Creek. The installation encompasses a total of 923 acres and lies just outside the corporate bounds of the City of Corpus Christi. The installation boundary area includes Air Installation Compatible Use Zone (AICUZ) lands that extend northwest and southeast from the main acreage of the installation. These AICUZ lands are Navy property acquired to encompass noise zones and Accident Potential Zones in the event an accident were to occur on approach to or departing from the runways at NALF Cabaniss. NALF Cabaniss is bounded to the south by Oso Creek, a perennial water body that ultimately flows into Oso Bay. Beyond Oso Creek are agricultural and industrial properties. The area east of the installation is comprised of mixed agricultural, industrial, and residential areas. North of the current boundary are former buildings and recreational areas that were once a part of the installation. These areas were transferred to the General Services Administration (GSA) for disposal in 1958, and are now the property of the local school district. Residential zones lie beyond these buildings to the north. A former landfill is located directly west of the installation.

2.1.2 Facility Description

NALF Cabaniss is an outlying field (OLF) with the current primary role of supporting Naval air training operations originating from NASCC. NASCC, home to the Chief of Naval Air Training, maintains and operates facilities and provides services and material to support the operations of the aviation facilities of the Naval Air Training Command and other tenant activities. The general command assignment is pilot training, primarily focusing on primary and intermediate flight maneuvering and traffic pattern operations.

NALF Cabaniss is located eight miles west of NASCC. The installation occupies 923 acres and was originally constructed with four 5,000-foot runways. Only two runways, oriented in north/south and northwest/southeast directions are presently active and maintained. Training Air Wing FOUR, based at the main installation, performs touch-and-go landing training between the main installation, NALF Cabaniss, and NALF Waldron, three miles south of NASCC. The airfield is lighted, to allow for night flight training, and daylight training.

NALF Cabaniss is covered with tall grasses, shrubs, trees, and other low-lying vegetation. Grasses and other vegetation near the operational runways are maintained through periodic mowing in support of flight training operations.

2.1.3 Facility History

In December 1938, the Navy recommended the Flour Bluff area south of Corpus Christi Bay as a potential site for the construction of a new aviation training station. Construction began June 30, 1940, and the installation was officially commissioned on March 12, 1941.

As an auxiliary station, Naval Auxiliary Air Station (NAAS) Cabaniss Field was outfitted with landing fields, runways, hangers, shops, barracks, a mess hall, and a recreational center. With the main installation and the six auxiliary fields, NASCC became the Navy's largest air training center during World War II (WWII). Following the conclusion of WWII, NASCC's mission was reduced to include only primary and instrument flight training. As a result, NAAS Cabaniss Field was temporarily decommissioned (1947), along with Naval Air Station (NAS) Kingsville, NAAS Rodd, and NAAS Waldron. The start of the Korean War in 1950 marked an increase in flight training at NASCC. NAS Kingsville, NAAS Cabaniss, and NAAS Chase Fields were also re-opened to support the increased training mission. In 1958, NAAS Cabaniss Field was converted from an auxiliary air station, which required personnel housing and support facilities, to an OLF, which required only the landing field property. As a result, approximately 346 acres in the northern section of the installation were determined to be excess and given over to the GSA for disposal. This portion of the property was comprised mainly of administrative and housing facilities; there was no known use of munitions within this portion of the installation. The installation was commissioned as a NALF in June 1969. NALF Cabaniss is currently in use as an OLF for primary flight training out of NASCC. Current flight training includes touch-and go, night training, and other student training operations.

2.2 CURRENT LAND USE AND ANTICIPATED FUTURE LAND USE

NALF Cabaniss is currently active. Air training is still active on two of the runways, while other areas of the Base have been abandoned and are no longer used. The Incinerator Disposal Site is closed and overgrown with vegetation (MEC operations ceased in 1980), and the reported landfill on the site is planned to remain. A long-term management plan is not anticipated for MEC; however, depending on decisions from the RI, land use controls may be imposed or further investigation and removal may occur.

3.0 SITE BACKGROUND AND PHYSICAL/ENVIRONMENTAL CHARACTERISTICS

3.1 SITE BACKGROUND

3.1.1 Site Location and Description

The Incinerator Disposal Site was located in the southern portion of the installation, 750 feet southwest of the eastern end of Runway 31 and bounded to the south by Oso Creek. Figure 3-1 is an aerial photograph of the site. Perimeter Road runs along the western and northern boundary of the site. The site is covered in dense vegetation, with open sections of wetlands on the south end near Oso Creek. The site includes a former sanitary landfill and also contains a boiler used to incinerate confiscated drug material, small arms, and ordnance items. Though its exact dimensions are unknown, the site may have occupied 17 acres.

The site contains a sanitary landfill shown on a historical map, and incineration of items such as small arms and ordnance items inside a 4-foot by 8-foot boiler reportedly occurred on the site, based on field observations of the boiler and burnt munitions in its proximity. Information collected in the Preliminary Assessment (PA) indicates that munitions were buried in or near an old sanitary landfill at NALF Cabaniss, and it was believed prior to the RI that this activity possibly took place on the Incinerator Disposal Site. No property records were found describing the opening, operations, closure or demolition of the sanitary landfill or incinerator site. Aerial photographs indicate the site area was disturbed as early as 1942, and an area identified as “sanitary fill” appears on the Master Shore Station Development Plan as early as 1958. The City of Corpus Christi reportedly used the boiler (that still remains on the site) to burn confiscated drug material until 1980.

3.1.2 Previous Investigations

Initial Assessment Study

A February 1984 Initial Assessment Study (IAS) for the Naval Energy and Environmental Support Activity (NEESA) identified the Incinerator Disposal Site, located in a former sanitary landfill southwest of Runway 31, which was used to incinerate small arms and ordnance items. The ultimate disposition of the ash and debris generated from the burning operations is not known.

The IAS report indicated that the Army had used an eight-foot long by five-foot diameter boiler for the incineration of “small ordnance items”, including .30 and .50 caliber small arms, flares, explosive cartridges from ejection seats, and “possibly 80 millimeter (mm) rockets” (likely 2.75-inch rockets) at a six-acre sanitary landfill facility. The report also indicated that the City of Corpus Christi also burned confiscated drug material in the boiler, that operations at the site ceased by 1980, and that “burned remains of ordnance cover an area less than 200 square feet". No confirmation study of the site was recommended in the IAS, "since only innocuous materials were disposed at this site and only limited residual was generated from ordnance burning".

Preliminary Assessment

In 2005, Malcolm Pirnie, Inc. conducted a PA of the former Incinerator Disposal Site at NALF Cabaniss. The PA summarized the history of munitions use for two former ranges at the NALF Cabaniss: the Skeet and Pistol Range and the Incinerator Disposal Site. The PA provided an assessment of the conditions with respect to MEC and MC. The PA concluded that based upon historical operations and visual observations made at the site, MEC and MC were confirmed at two discrete locations at the former Incinerator Disposal Site: around the boiler and near Perimeter Road. Due to the observation of multiple areas of thermally-treated munitions scrap at the former Incinerator Disposal Site, it is possible that similar areas of munitions scrap may be present. Therefore, the PA concluded that MEC and MC are suspected to be present at other locations within the former Incinerator Disposal Site.

Time-Critical Removal Action

A Time-Critical Removal Action (TCRA) to address MEC was conducted in 2008 by Tetra Tech prior to performing the MC SI (Tetra Tech NUS, 2009a). The TCRA was limited to a detector-aided surface survey to allow for surface clearance of MEC along Perimeter Road. The clearance was performed in order to mark safe pathways through the area for mowing crews, security patrols, and others who pass along Perimeter Road. A full (100 percent) detector-aided survey was conducted on these limited areas. Fifty-three MEC item listings appear on the MEC tracking log for the removal action and SI for the Incinerator Disposal Site, all discovered in the northern half of the site. The following thermally-treated munitions scrap was observed inside and out around the boiler that is currently lying on its side with a large hole in the bottom of it: 7.62-mm small arms ammunition, 20-mm projectiles, 30-mm projectiles, 40-mm projectiles, 5-pound practice bombs, and flares/pyrotechnics (cartridge actuated device [CAD] and propellant actuated device [PAD]). The following munitions items were discovered near Perimeter Road approximately 450 feet west of the boiler: 20-mm projectiles, 5-pound practice bombs, 2.75-inch rockets, as well as thermally treated munitions scrap including rocket base plates and fins. A total of four detonation shots were needed to destroy the MEC items discovered on-site so that the MEC hazards to personnel passing near or through the area were removed or reduced. The results of the TCRA are presented in the After Action Report (Tetra Tech NUS, 2009b).

Following the TCRA, a limited detector-aided surface survey was conducted in order to delineate the extent of surface MEC along pre-determined transects. The detector-aided surface survey was conducted by the UXO Team along sixteen approximate 800-foot north-to-south transects extending from Perimeter Road to Oso Creek to locate MEC and MPPEH on the surface, and to identify areas for possible follow-on geophysical mapping of subsurface anomalies. All items discovered during the detector-aided surface survey were left in place. The results of the detector-aided surface survey are also presented in the After Action Report (Tetra Tech, 2009b).

<u>Site Inspection</u>

A MC SI was conducted by Tetra Tech at the Incinerator Disposal Site in April and May 2008 following the TCRA and detector-aided surface survey. The SI consisted of the collection and laboratory analysis of surface soil, groundwater, surface water, and sediment samples; land surveying of sample locations; and reporting of results. Two soil borings were advanced using direct push technology (DPT) to determine subsurface lithology, geotechnical parameters and depth to groundwater. Subsurface soil samples were not collected for laboratory analysis. Temporary monitoring wells were installed to determine subsurface lithology and collect groundwater samples to determine the groundwater resource classification. UXO Technicians were on site during the SI MC investigation and sampling event to conduct UXO avoidance activities.

Analytical results from the SI indicated that MC (specifically, metals) were detected in surface soil at concentrations exceeding risk-based regulatory screening criteria (i.e., Texas Risk Reduction Program [TRRP] human health criteria). Measured surface water and sediment concentrations were less than the applicable TRRP human health or ecological criteria. Results of the SI are presented in the SI Report for the Incinerator Disposal Site (Tetra Tech NUS, 2009a).

3.1.3 <u>Current Land Use and Anticipated Future Land Use</u>

Currently, NALF Cabaniss is an OLF with the primary role of supporting Naval air training operations originating from NASCC. The airfield is lighted to allow for night flight training, and daylight training is also conducted. Future use of the site is not expected to change.

The Incinerator Disposal Site is currently not used and is located in a controlled area accessible only through an access gate. It is anticipated that the landfill will remain, and the area designated as open space. Long term land use controls have not yet been established for the site, as site investigation continues.

3.2 PHYSICAL/ENVIRONMENTAL CHARACTERISTICS

The following section provides information presented in documents prepared to support previous site investigations, including climate, topography, geology, soil and vegetation types, hydrology, hydrogeology, cultural and natural resources, and threatened, endangered, and protected species.

3.2.1 Climate

The climate at NALF Cabaniss is a moderate to semi-tropical marine climate with hot, humid, breezy summers and mild winters. The wind direction is predominantly from the southeast during the warmer months, and from the northwest and north during periods of higher pressure and cold fronts during cooler months. Average low and high temperatures are 42 degrees Fahrenheit (°F) (January) and 86°F (July), respectively. The number of clear days averages 114 days per year. Annually, there are more than 100 days of high temperatures of 90°F or higher, and fewer than seven days of low temperatures at or below 32°F. Annual rainfall average is 34 inches.

3.2.2 Site Topography

The general topography of the mainland areas of Nueces County around Corpus Christi Bay can be described as a low-lying coastal area consisting of flat coastal prairies, chaparral pastures, and farmland. Elevations range between 15 and 30 feet above mean sea level (MSL). The topographic profile of NALF Cabaniss is generally flat with a mean elevation of 30 feet above MSL, with some steep downward slopes near Oso Creek. Ground generally slopes downward from north to south across the Incinerator Disposal site.

3.2.3 Site Geology

The coastal plain of the Corpus Christi area is underlain by Pleistocene river, delta, and shoreline sediments deposited during the interglacial periods. NALF Cabaniss is underlain by the Beaumont Formation, characterized by barrier islands and beach deposits composed of fine grained sands. Numerous pimple mounds and poorly defined relic beach ridges characterize the land surface. Locally active sand dunes are present in undisturbed areas. The barrier island and beach deposits of the Beaumont Formation are typically less than 60 feet thick. Other stratigraphic units, in order of increasing age, include the Montgomery Formation, Lissie Formation, Willis Formation, and the Goliad Sand.

In general, the site geologic section consisted of an upper fine-grained unit and a lower coarse-grained unit. This lower coarse-grained unit contained the first zone of saturated material. The upper fine-grained unit consisted of a gray to tan with depth, lean clay with a varying amount of admixed silt. The silt content generally increased with depth. Caliche nodules were present in the upper portions of the section. The thickness of the unit was between 5 and 18 feet.

3.2.4 Site Soil and Vegetation Types

NALF Cabaniss is underlain by Victorian Association soils. The Victoria series soils are dark, calcareous, crumbly, clayey sand soils that are referred to as blackland. These soils are deep, nearly level, and have developed over clayey materials of the coastal terrace. The soils exhibit very slow internal drainage when wet and crack to depths of several feet when dry. Surface drainage from these soils flows into Oso Creek to the south of the installation.

Vegetation in the NALF Cabaniss area consists primarily of tall grasses and copses of shrubs, trees, and other low-lying vegetation. Original vegetation at the site likely consisted of mid- to tall grass in prairie grassland with minimal tree coverage. However, agricultural use and later development of the installation have left no native grasslands and natural vegetation; only disturbance-related species remain.

3.2.5 Site Hydrology

Surface water resources at NALF Cabaniss include open drainage ditches, which drain south and southeast into Oso Creek. The eastern-most drainage ditch intersects the Skeet Range near the former locations of the armory and trap arcs. An abandoned drainage ditch was present west of the former range, but does not currently contain water. An unnamed pond associated with the former Sewage Disposal Plant is present 100 feet southeast of the NALF Cabaniss property.

Oso Creek forms the southern border of NALF Cabaniss. Oso Creek empties into Oso Bay, Corpus Christi Bay and ultimately the Gulf of Mexico.

Freshwater and brackish water jurisdictional wetlands have been delineated at NALF Cabaniss, primarily concentrated at the southern end of the installation along Oso Creek. The wetlands at NALF Cabaniss cover a total area of 28.2 acres.

3.2.6 Regional and Site Hydrogeology

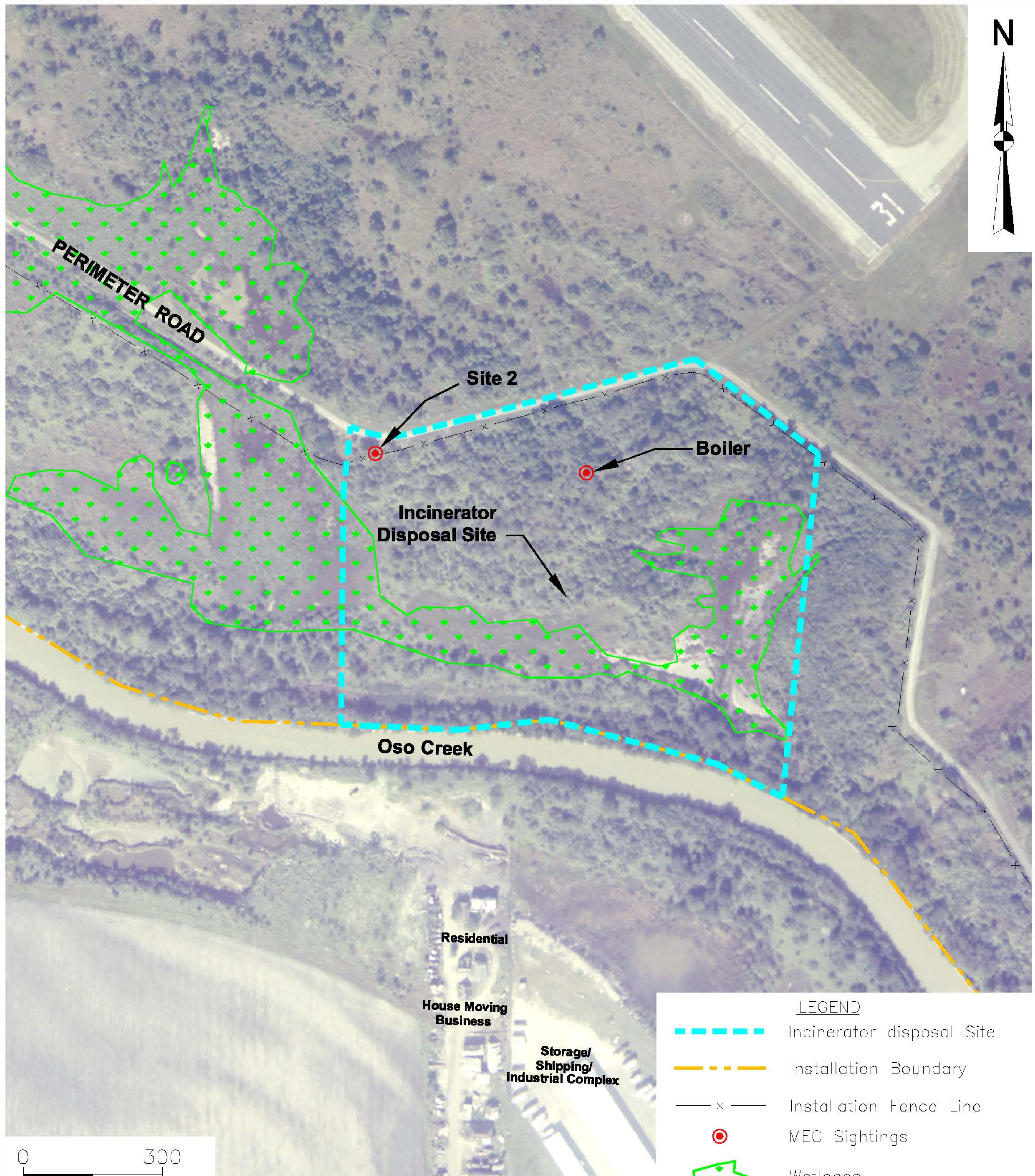
The water table aquifer, the Gulf Coast Aquifer (6 to 250 feet below ground surface [bgs]), is predominantly sandy material overlying a clay zone with low permeability. Regional groundwater flow in the Corpus Christi area is to the northeast; local flow paths at NALF Cabaniss are unknown. Artesian aquifers located 250 to 2,800 feet bgs in the Corpus Christi area are moderately to highly saline and, therefore, have limited potential use. Therefore, potable water for the NALF Cabaniss and the City of Corpus Christi is supplied from Lake Corpus Christi, 38 miles to the northwest.

As discussed previously, the lower-coarse grained unit was the zone in which saturated materials were first encountered. Groundwater at the site appears to be under water table to slightly semi-confined conditions as water was measured in some wells at a higher level than was encountered during drilling. Depth to static groundwater was measured at approximately 6 to 15 feet bgs in the three temporary wells installed at the former Incinerator Disposal Site. Groundwater flow is generally to the south towards Oso Creek.

3.3 ECOLOGICAL SUMMARY

3.3.1 Cultural and Natural Resources \ Endangered and Special Status Species

There are no cultural or natural resources in the former Incinerator Disposal Site Area. Currently, there are no federally-listed endangered or special status species located at the site. However, there are several state protected species that may be present at NALF Cabaniss. A discussion of the rare, threatened, and endangered flora and fauna known historically from Nueces County that have the potential to be found on NALF Cabaniss is presented in the Natural Resources Management Plan (Navy, 2006). A Biologist surveyed the site for nesting birds and other species that might be affected by field activities on April 26, May 9, May 15, May 21, and June 4 of 2011. The Biologist was escorted by a UXO technician while working within the boundaries of the Incinerator Disposal Site. No evidence of nesting birds or concerns for other animals at the site caused any delays in field activities.



NOTE: MEC Presence was determined through review of historical documentation, interviews and visual survey.

DRAWN BY GS	DATE 2/6/12	NAVFAC	SITE MAP INCINERATOR DISPOSAL SITE NALF CABANISS CORPUS CHRISTI, TEXAS	CONTRACT NO. 112G01821
CHECKED BY LB	DATE 2/6/12			CTO NO. 0135
REVISED BY	DATE			APPROVED BY / DATE
SCALE AS NOTED				DRAWING NO. FIGURE 3-1 / REV. 1

4.0 MEC RI GEOPHYSICAL INVESTIGATION METHODOLOGY

4.1 MEC GEOPHYSICAL INVESTIGATION APPROACH

The purpose of the MEC geophysical investigation was to determine the delineation of a known landfill as well as quantify the vertical and horizontal extent of MEC contamination. This approach included site preparation, surveying, and intrusive investigation. Survey activities were performed along 24, 50-foot spaced planned transects spanning across the site shown by a line symbol on Figure 4-1.

The following steps were performed as part of the MEC geophysical investigation:

- Land surveying to establish transect lines.
- Site vegetation management - including grass, brush, and limb clearing.
- Dismantling existing piles of debris to separate and identify potential MEC/MPPEH items from non-munitions scrap materials, to the degree possible by hand.
- Non-MEC surface debris removal by hand from the investigation area prior to MEC geophysical surveying.
- UXO detector-aided surface surveys to document and clear potential MEC/MPPEH in a 5 to 10 foot width along each survey transect.
- DGM along single lines for each transect to provide the locations of sub-surface anomalies possibly representing MEC, as well as to provide a delineation of the apparent landfill area following processing of the DGM data.
- Analysis of surface and subsurface results guided the selection and positioning of intrusive anomaly investigation and MC sampling locations (MC results are discussed separately in the RI report).
- Intrusive MEC investigation at 80 selected possible MEC anomaly locations.
- Inspection and segregation of all MEC/MPPEH/Material Documented as Safe (MDAS) items.
- Treatment via donor charge of all MEC/MPPEH items.

- MDAS items were containerized and removed off-site by a certified recycler.

Field activities were performed in accordance with the UFP-SAP (Tetra Tech NUS, 2010). Appendix A contains photographs of the various activities conducted. For any deviations to the UFP-SAP, a Field Change Request (FCR) form was completed detailing the issue and the modification was then approved by Tetra Tech and the Navy Remedial Project Manager (RPM). FCRs are located in Appendix B. No major FCRs were submitted during survey performance.

4.2 SITE PREPARATION AND PRE-MOBILIZATION ACTIVITIES

All preliminary activities such as subcontractor procurement and coordination, obtaining permits, authorizations, and site access, and clearance of easements and utilities were completed in accordance with the approved UFP-SAP. The field team members reviewed the UFP-SAP and its associated appendices, and reviewed the Health and Safety Plan (HASP) prior to the start of project activities.

4.2.1 Request for ESS and NOSSA Concurrence Notification

Due to the intrusive nature of the RI investigation, an ESS was submitted to the Naval Ordnance Safety and Security Activity (NOSSA) in accordance with NOSSA Instruction (NOSSAINST) 8020.15B, Explosives Safety Review, Oversight, and Verification of Munitions Responses (January 26, 2009) and NAVSEA OP 5 Revision 7 (Naval Sea Systems Command, 2005). The ESS was approved by the Department of Defense Explosive Safety Board (DDESB) in March 2011.

4.2.2 Permitting

Utility clearance and a dig permit were requested for intrusive activities. Bird nesting surveys were also performed five times during the course of the spring-summer fieldwork (April through June) to determine if and when work was permitted. All 24 survey transects were searched by a qualified biologist escorted by a UXO Technician during each of the five surveys conducted. No delays were incurred from bird nesting activities.

4.2.3 Mobilization

A two man UXO team was present on-site for three days in December of 2010 for a scheduled controlled burn performed at the site in order to clear vegetation from the investigation area. The controlled burn was deemed unsuccessful, and was only effective in removing a small percentage of vegetation.

Tetra Tech UXO personnel mobilized to NALF Cabaniss in January 2011, to initiate the MEC investigation with transect layout and vegetation management. UXO personnel were demobilized in February 2011 until remobilization in May 2011. The Senior UXO Supervisor (SUXOS) and UXO Safety Officer (UXOSO) held field team orientation meetings to ensure that essential personnel were familiar with the scope of field activities prior to entrance to the site.

4.2.4 Site Accessibility and Traffic Control

The NALF Cabaniss facility is bordered by a perimeter fence on the north, east, and west sides and by Oso Creek to the south. Site accessibility was controlled by an unmanned locked gate. Tetra Tech locked the gate after entering and leaving each day and drove vehicles to the site from this gate. The site is normally accessed by an unpaved road named Perimeter Road. The facility, including Perimeter Road, was patrolled regularly by NALF Cabaniss personnel.

4.2.4.1 Exclusion Zones

Exclusion zones were established using barricades during the RI investigation operations according to UFP-SAP requirements.

4.2.5 Site Survey Reference System

Tetra Tech's geographic information system (GIS) department created a 50-foot grid interval to encompass the work that was needed in various zones. The grid was numbered from 1 through24 for the north-south lines starting with the western most line as number 1 and increasing to the east. The east-west lines were designed by letters A through T, with the southern line as the letter A and increasing to the north. The entire grid was geo-referenced utilizing North American Datum (NAD)83 State Plane coordinates (Texas South Zone). Each grid intersection was assigned a state plane coordinate value. These coordinates were uploaded to an electronic data collector to be used with Survey grade Real Time Kinematic (RTK) survey equipment for stakeout. The grid is depicted in the image shown below:

Prior to traveling to the site, an internet query of the National Geodetic Survey (NGS) monumentation web page yielded the location of an NGS monument designated AH1752. Using the published latitude and longitude of NGS monument AH1752, Tetra Tech personnel converted the data to the Texas State Plane Coordinates South Zone (North 17140754.111, East 1331009.886). A vertical position was not necessary for this task.

Tetra Tech utilized this position to set additional control points (numbers 50 and 51) closer to the site, to be used by other UXO team members for checks with hand held global positioning system (GPS) units.

Once additional controls had been established, a local Real Time Network (RTN) was used to receive satellite timing corrections via cell phone to obtain RTK positions. The previously mentioned control was checked using the RTN data and the error did not exceed 0.03 of a foot.

A check at a control point was performed at the beginning and the end of each staking session (minimum of two per session) to ensure positional quality and to avoid any equipment setup errors. The maximum error of any of these checks was 0.03 of a foot.

Tetra Tech staff was accompanied by a UXO technician as each grid intersection and zone limit was staked in the field and the lines cleared. Only one position (K15) was not able to be staked due to a bee hive located at that coordinate.

4.2.6 Vegetation Management

Pre-survey brush clearing (5 to 10-foot-wide paths) to allow for MEC surveys along planned transects was conducted by a Subcontractor and by Tetra Tech staff. Brush cutting and mowing of grass were required to prepare the sites for detector-aided surface surveys and DGM. Hand-held brush cutters/weed eaters (string or steel blade) were used to clear light vegetation and small grassy areas, and chain saws were used to remove heavier brush and small (less than 2-inch diameter) trees. Brush/vegetation cuttings were removed from the investigation site and mulched. The resulting piles of mulch were collected and left for future disposal along the eastern-most fire break. A controlled burn was attempted in December 2010, but was unsuccessful; therefore, the majority of vegetation was removed by brush cutting. All brush/vegetation cutting by the Subcontractor was performed with a UXO qualified escort. A small portion of brush cutting was performed by UXO technicians in areas where known MEC was present. Also, additional brush cutting was required and performed by UXO technicians in some areas due to regrowth of vegetation. All vegetation management operations were performed using UXO avoidance.

4.3 MEC SURVEY METHODS

4.3.1 UXO Detector-Aided Surveying

4.3.1.1 Personnel

The UXO detector-aided surface surveys were managed and performed by qualified Tetra Tech UXO Technicians with oversight from a qualified UXO Manager and UXOSO/UXO Quality Control Specialist (UXOQCS) person meeting the requirements stated in DDESB Technical Paper (TP) 18 (2004).

4.3.1.2 General Methodology

A survey width of 5 to 10 feet was established along survey transects. A Schonstedt GA-52Cx magnetic locator and a White's Spectrum XLT all-metals detector were used for UXO detector-aided surface surveys and intrusive investigations. An initial UXO detector-aided surface survey was performed prior to DGM surveys to ensure that no surface MEC/MPPEH hazards were present. UXO detector-aided surface and subsurface surveying was also performed at DGM anomalies selected for intrusive investigation using Schonstedt GA-52Cx and White's Spectrum XLT instruments. All MEC/MPPEH items discovered during the detector-aided surface survey and anomaly intrusive investigations were handled in accordance with the DDESB-approved ESS. (Tetra Tech NUS, 2010)

4.3.1.3 Equipment and Positioning Instruments

A Schonstedt GA-52Cx magnetic locator and White's Spectrum XLT all-metals detector were used for UXO detector-aided surface surveys and anomaly intrusive investigations. The Schonstedt GA-52Cx detects the magnetic fields of ferromagnetic objects and will not detect copper, brass, or aluminum munitions. The White's Spectrum XLT detects the induced magnetic fields of ferrous and non-ferrous objects. Detection depth is limited by the size and orientation of a target and soil characteristics of the area.

A Trimble GeoXH GPS unit with sub-meter accuracy capability was used to record the locations of items detected during detector-aided surface surveys and anomaly intrusive investigations.

4.3.1.4 Equipment Calibration and Testing

The White's all-metals detector requires calibration; the Schonstedt does not require calibration. To ensure the Schonstedt is operating properly, the operator turns on the instrument and slowly moves the locator towards ferrous metal. As the probe advances toward the target, the audio signal tone will increase; failure to detect the object is reason to reject the instrument. The GPS equipment used during this project also does not require calibration.

4.3.1.5 Quality Assurance/Quality Control

4.3.1.5.1 Geophysical System Verification (GSV)

A Geophysical System Verification (GSV) was performed to provide rigorous QA of the MEC geophysical survey performance. The GSV is composed of two main processes (Nelson et. al, 2009). The first is an instrument verification strip (IVS), and the second is blind seeding in the production area. Each process is described in more detailed in sections below.

IVS

An IVS was used to ensure that analog detection instruments (Schonstedt GA-52Cx and White's Spectrum XLT) were operating properly and able to identify anomalies in the shallow subsurface. Tetra Tech's UXOQCS seeded the IVS with four surrogate items or industry standard objects (ISOs) listed below, and buried them 10 feet apart in accordance with the MEC RI UFP-SAP (Tetra Tech NUS, 2010). These seeds were selected to represent a variety of MEC items suspected on the site to test seed detection by each operator and respective instrument. Documentation of the IVS installation and daily tests are included in Appendix B. Photographs of the surrogate items being installed in the IVS and the completed IVS are included in Appendix A, and the seeds are described in the table below. All operators and analog detection instruments used for the site survey work were first successfully tested on the IVS plot.

Item and Burial Depth	Burial Depth
Small ferrous ISO (1"diameter 4"long pipe)	4 inches
Small aluminum ISO (1"diameter 4"long pipe)	4 inches
Medium ferrous ISO (2"diameter 8"long pipe)	8 inches
Large ferrous ISO (4"diameter 12"long pipe)	16 inches

Blind Seeding and other QC

The UXOQCS placed one to six blind surface seeds per daily lot of work with a minimum of one blind surface seed per half mile of transect. A total of 20 blind surface seeds were placed with the locations recorded by the UXOQCS. All 20 blind surface seeds were detected and recovered, and the locations recorded. The location, placement, and seed identification was recorded on the daily QC log (Appendix B).

The UXOQCS performed a QC detector-aided surface survey. Twenty-five percent (25%) of the first four transects and ten percent (10%) of the remaining transects were inspected for quality control with no reported discrepancies.

The daily GPS QC checks were post processed by the GIS personnel in the Tetra Tech Pittsburgh Office. GPS points collected during the QC checks plotted within three feet of the established control point locations.

The UXOQCS performed a QC check of all anomaly excavations to ensure that all metallic items 20 mm or larger was detected. All personnel performed the Supplemental RI tasks safely, and passed the QC tests with acceptable results (documented in Appendix B).

4.3.2 Digital Geophysical Mapping (DGM)

4.3.2.1 Personnel

DGM was performed by Tetra Tech in May and June 2011, to search for anomalies that could possibly represent subsurface MEC and anomalous responses that could help delineate a landfill. DGM site personnel met Project Geophysicist level pursuant to USACE (2003a) DID MR-025 and the SAP (Tetra Tech NUS, 2010), and data was managed by a Project Geophysicist.

4.3.2.2 Methodology

Generally, DGM consisted of field data collection using metal detectors capable of digitally storing instrument values, followed by data processing and production of maps showing interpreted anomalies that could potentially represent subsurface MEC and landfill boundary. The DGM methods, while good at detecting metallic items, cannot positively identify the nature of detected metallic objects (i.e. whether munition-related or not). DGM was performed according to procedure stated in the UFP-SAP (MEC SAP). The UXO team conducted visual and UXO detector-aided surface surveys of the survey area ahead of time to search for surface MEC or MPPEH to mark/dispose and to avoid during the DGM surveys. All DGM survey activities were performed with a qualified UXO escort.

DGM for possible MEC was conducted using a Geometrics model G-858G gradient cesium-vapor magnetometer (ferrous metal detector) and a Geonics, Ltd. EM61-MK2™ (EM61) all-metals detector. DGM for locating the possible landfill boundary was conducted using a Geonics, Ltd. EM31-MK2 (EM31) terrain conductivity meter, supplemented by use of the G-858G and EM61 used for the MEC surveys. The presence or absence of subsurface metal in areas with aboveground metal or reinforced concrete cannot be determined from the geophysical data alone. A sub-meter accuracy category differential global positioning system (DGPS) unit was integrated to collect readings once per second to provide positioning for geophysical data. On site QC control point testing was performed by comparing the survey DGPS unit readings to two survey control points with established coordinates. Results of this QC test generally indicated approximately 1 meter accuracy or better at the control points (see Appendix C figures C-6 and

C-7 for the GPS QC test data). Generally throughout the site, open sky areas received stronger satellite reception and higher positional accuracies. More detail on QC field testing is located in Appendix C.

4.3.2.3 Equipment

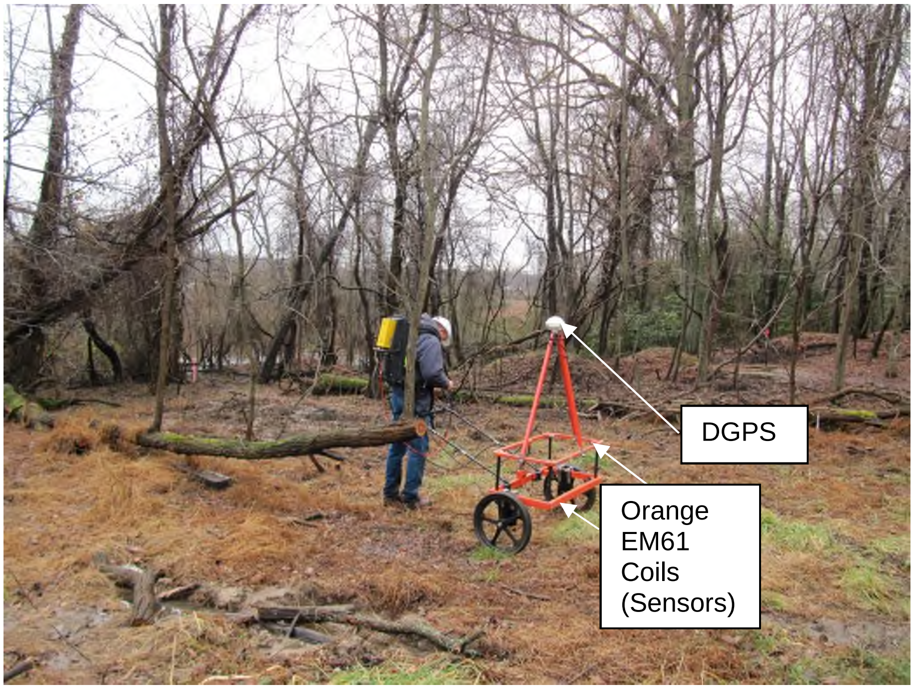
G-858G (magnetometer)

The G-858G model used on the project consisted of two magnetometer sensors. Sensors of the G-858G were positioned in standard carry mode (hand-carried a few feet out in front of the operator), and were vertically spaced with the bottom sensor (sensor 2) positioned 20 inches above ground surface, and the top sensor (sensor 1) positioned thirty seven inches above ground surface. Each sensor passively measures Earth's magnetic field, plus or minus magnetic fields from nearby (detectable) ferrous metallic items – typically referred to as total magnetic field. Detectable ferrous metal therefore appears as an anomaly in Earth's magnetic field. A vertical gradient was calculated by subtracting top sensor data from the bottom sensor data. The vertical gradient can minimize off-profile terrain noise and diurnal changes in Earth's magnetic field. Magnetic field readings were collected ten times per second on a controller unit at a normal walking pace. A Hemisphere A100 GPS was used to provide positioning for the DGM data, and real-time differential corrections were applied to the GPS data (referred to as DGPS) to achieve accurate results. Magnetometers can potentially detect items below and off to the side (offset) of the sensors. The same item underneath the sensors can be detected deeper than if it were located off to the side of the sensors. Generally, larger more massive ferrous objects can be detected farther away than smaller ones. The USACE has established a relationship through testing that indicates approximate detection distances for projectile MEC can be calculated by multiplying the diameter of the projectile by 11 to estimate typical maximum detection depths for individual items. A base station magnetometer (model G-856) was set up (near the IVS plot) during site surveying to correct survey magnetometer data (as needed) for any diurnal natural spikes or shifts in Earth's magnetic field over the period of data collection.

Geometrics G-858G Magnetometer configured with DGPS on the survey site

EM61-MK2

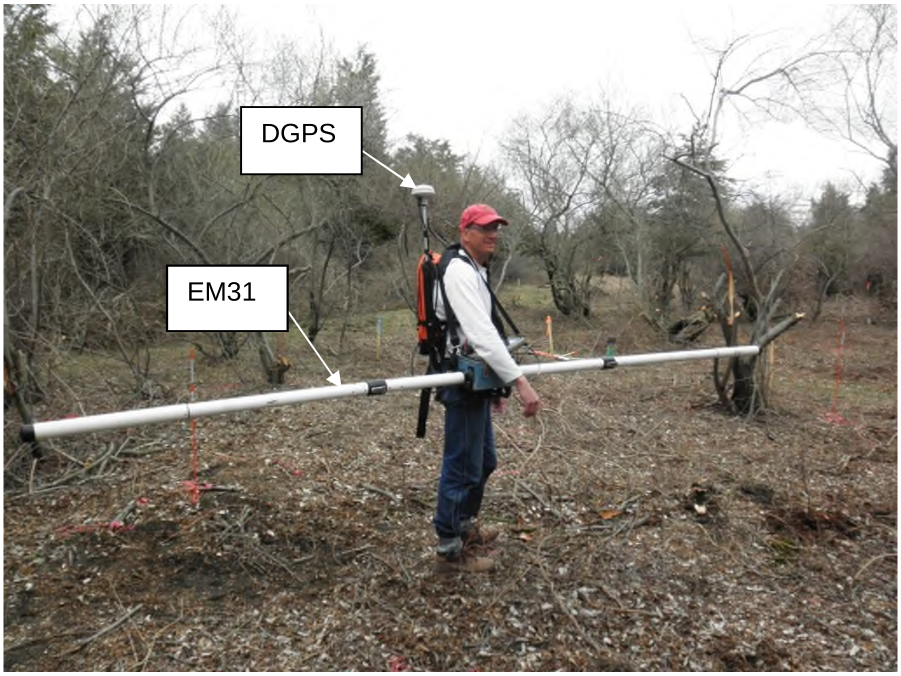
The EM61-MK2 used for the project consisted of two, half meter by 1 meter coils (sensors) spaced 11 inches apart vertically, where the coils were towed on wheels in standard trailer mode (bottom coil 18 inches above ground surface). During measurements, the bottom coil generated a primary electromagnetic (EM) field, and then measured an induced secondary EM field that according to theory would contain anomalous response from the presence of nearby (detectable) metal. Measurements were collected at four time periods (commonly referred to as time gate mode) following primary field generation (216, 366, 660, and 1266 microseconds). The instrument is designed to be mostly sensitive to what is enveloped by the coils (sensors) footprint (half meter by 1 meter). EM61 data were recorded ten times per second by an Allegro field computer linked to the unit moved at a slow to normal walking survey speed, and the same DGPS used with the G-858G was integrated with the EM61 instrument.



A Geonics EM61-MK2 configured with DGPS

EM31-MK2

The Geonics EM31 is a frequency domain EM instrument. The EM31 generates a primary electromagnetic field, and secondary EM fields are measured as a function of frequency allowing stark differences in terrain conductivity to be differentiated. Two measurement components are typically recorded; quadrature-phase (QP) and in-phase (IP). The QP component is sensitive to metallic and non-metallic components of the ground, and the IP component is predominantly sensitive to metal. The instrument can be operated in horizontal or vertical dipole mode, which nominally measure 9 or 18 foot intervals below the instrument, respectively. The EM31 was set to acquire data 5 times per second at a slow to normal walking survey pace, where the operator carried the instrument in the vertical dipole mode with the boom of the instrument carried at hip height and oriented parallel to survey line direction.



A Geonics EM31-MK2 configured with DGPS

4.3.2.4 Data Processing and Interpretation

Data results are presented geographically as color contour maps (a color bar scale accompanies the maps to indicate the color contour data values). Interpreted anomalies that could potentially represent MEC are presented individually by an identification number in tabular format. Anomaly selection (picking) criteria is specified in the site specific discussions below. Generally, a threshold (a minimum amplitude response) was selected to pick anomalies with responses at the threshold and above that would possibly be representative of MEC items. Each interpreted anomaly is listed with its coordinates (northing and easting) and instrument response in tabular format. Half-widths are also listed in the table. Half-widths indicate an estimated anomaly size dimension (in units of feet) along the direction of the survey line (data profile). Half-widths were calculated (estimated) by Geosoft's Oasis-montaj data processing software.

4.3.2.5 IVS

Each day prior to on site MEC DGM, a QC test called an IVS was successfully completed by survey personnel using DGM geophysical equipment utilized on the site. The same IVS utilized for UXO detector-aided surveying was also used for DGM surveying. The purpose of the IVS was to ensure operators and DGM survey methodology were effective by testing them on an area seeded with standardized metallic objects called ISOs. The IVS is intended for UXO instruments, and is not suitable for testing the less sensitive EM31 that was being used for landfill delineation. EM61 instrumentation has been extensively tested over these standardized objects, and the U.S. Naval Laboratories has published expected instrument response ranges for properly operating EM61 instruments at variable ISO burial depths, allowing a quantitative QC check on the EM61 equipment function. EM61 data from each day's test was compared to the response curves, and IVS data was determined to exceed response curve predictions for the buried ISOs, thereby fulfilling QC requirements for this test. Results of this test were documented on IVS report and Daily QC forms completed during the fieldwork (see Appendix C for forms). Analogous response curves for the G-858G magnetometer have not been published; however, the IVS was still used to evaluate detection of the ISOs that would indicate this instrument's functionality. Figures C-3 through C-5 in Appendix C show daily IVS data in color contour format with symbols for the IVS seeds superimposed on the data.

IVS Procedure

First, a prospective plot was pre-selected based on utility clearance information and absence of potentially interfering aboveground objects or obstacles (e.g., away from aboveground metal). Next, the plot was screened by the UXO Team using analog geophysical instruments. The plot was determined to be relatively free of metallic response and suitable for this QC test. A few small background (or ambient) anomalies were detected and these locations were avoided during burial of seed items to avoid ambiguous test results. A small, medium, and large steel ISO, and one aluminum ISO were then each buried about 10 feet apart in a straight line that was marked by survey stakes so the ISOs could be traversed. Detections and responses were then verified, and EM61 data was compared to U.S. Naval Research Laboratory published response curves for the ISOs to determine proper instrument operation. A GPS unit was used to record the positions of the IVS seeds. Survey lines were then conducted along a line passing over top of the seeds and also along parallel lines 18 and 30 inches apart on both sides of the initial line.

Results

Both the G-858G and EM61 instrument data confirmed 100 percent ISO detection each day survey data were collected, and all EM61 IVS data fell within the expected response range for each ISO.

Detailed IVS results can be found in Appendix C, including maps showing the DGM data in relation to the surveyed seed locations (Figures C-3 through C-5).

4.3.2.6 Blind Seeding and other QC

A DGM blind seeding QC check was incorporated into the project. This check involves burying shallow metallic objects (called blind seeds) along survey lines so that they should be detected by properly operating survey equipment, but in a manner such that the operator is unaware of their burial in order to blindly test the operator's functionality with the equipment. A UXO Tech performed the burial after pre-screening with a handheld detector to avoid burying a seed in an already anomalous location. According to the SAP, blind seeds were to be buried at a frequency of 1 per half mile of transect, which would amount to about seven required blind seeds for the site. Eighteen medium-sized ISO blind seeds were buried on transects spread out across the site, and all 18 locations had anomalous responses in their vicinity (all 18 blind seeds were judged to have been detected). Figures C-1 and C-2 in Appendix C show the DGM G-858 and EM61-MK2 data, respectively, in color contour format with symbols for the locations of the blind seeds superimposed on the data. Two seeds intended for the blind seeding program were buried off line, and consequently did not satisfy criteria as an eligible DGM blind seed (SAP specified that all blind seeds were to be buried on line). A few seeds that were buried to serve as blind seeds were likely exhumed by feral pigs before DGM could be tested on these locations (pigs were seen moving about the site a few times during project performance, and unearthed blind seeds were observed during DGM performance). A Tetra Tech Geologist (in the Pittsburgh office) performed the detection check of the blind seeds during project performance so that if a problem was evident, correction and/or rechecking was practical while DGM surveying was mobilized. DGM data was emailed by the Tetra Tech Site Geophysicist to GIS personnel who plotted seed symbols from GPS coordinates provided by the UXO Team over top of the DGM data. No repeat blind seed checking was judged to be necessary for the project.

Other DGM QC tests and calibrations were performed successfully to meet UFP-SAP requirements, and the results are included in Appendix C and summarized in the MEC Data Quality Review and Usability Assessment and Checklist. All DGM results have been reviewed, and the presented DGM data are usable.

4.3.3 Anomaly Intrusive Investigation

A total of 80 subsurface anomalies were selected by the Project Team for investigation based on the results of geophysical survey conducted during the RI, and figures are included displaying the investigated anomalies and the resulting MEC/MPPEH discoveries. Each anomaly was cleared to a depth of 2 feet bgs within the footprint of the landfill, and to a depth of 2 feet bgs in areas outside the footprint of the landfill. It is important to note that the UFP-SAP allowed for investigation to a depth of 6 feet bgs for anomalies located outside the footprint of the landfill; however, no anomalies were detected at depths greater than 2 feet. Excavations were conducted using manual procedures (no mechanical excavations were performed during this RI) until the sidewalls and bottom of each excavation were clear of anomalies, or the planned depth was reached for the bottom, and to a horizontal distance of 2 feet from the pin flag designating the reacquired anomaly location. Some variance occurred in two intrusive anomaly investigation locations (anomalies 299 and 317). These locations have been labeled burial or burn pits and extended beyond the 2 foot horizontal investigation distance to the point that the two locations intersected and continued beyond the edge of the transects. After discussion with the decision team the locations were limited to the edge of the cut transects and labeled burn pits.

Each intrusive “dig team” consisted of two qualified UXO personnel including at least one UXO Technician II. Dig teams were supervised by a UXO Team Leader (UXO Technician III) who supervised up to three dig teams at one time as long as visual and verbal communications were maintained between the UXO Team Leader and his assigned dig teams. Intrusive activities did not begin until the UXOSO has given a safety briefing, and the UXO Team Leader had given a site-specific safety briefing to their team, communications were established, and all nonessential personnel were evacuated outside the EZ. Authorized visitors were allowed to enter the EZ during intrusive operations in accordance with requirements in NOSSA guidance, OP-5 and the NOSSA-approved ESS.

The data from each anomaly intrusive investigation was recorded on the Target Excavation Tracking Log located in Appendix B. The data recorded Included the size and depth of the excavation, the weight and description of the item discovered, and the detection equipment used.

All MEC/MPPEH was treated in accordance with the DDESB approved ESS (Tetra Tech NUS 2010). All MDAS was inspected, segregated, certified, containerized, and removed off-site by Demil Metals, Inc. a certified recycler.

Non-munition related debris was moved from the investigation area (when applicable) and will be removed from the site at a later date by NALF Cabaniss.

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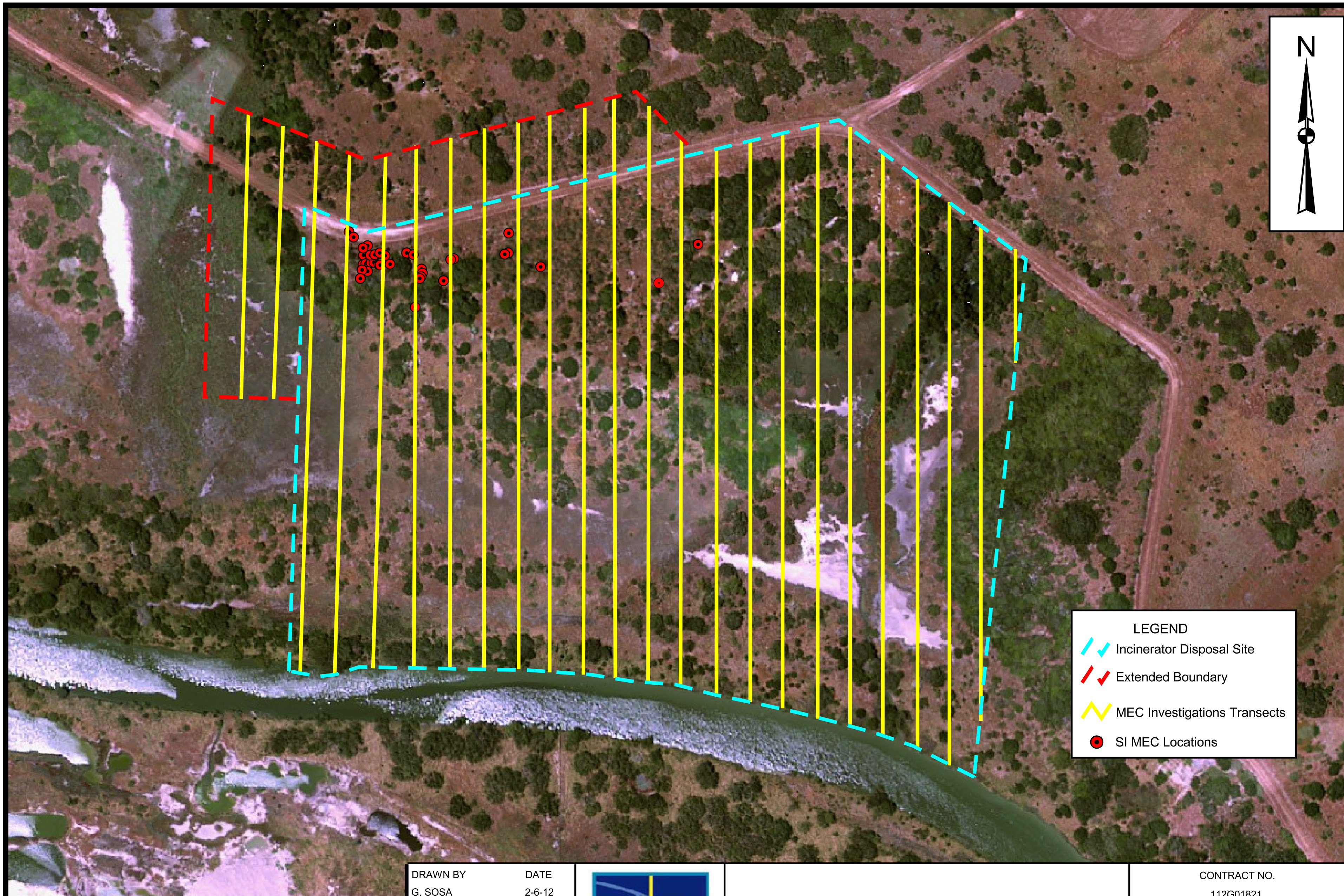

200 0 200 Feet

Scale in Feet

DRAWN BY G. SOSA	DATE 2-6-12	NAVFAC	GEOPHYSICAL SURVEY LOCATION INCINERATOR DISPOSAL SITE NALF CABANISS CORPUS CHRISTI, TEXAS	CONTRACT NO. 112G01821
CHECKED BY L. BASILIO	DATE 2-6-12			OWNER NO. 0135
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5.0 MEC RI GEOPHYSICAL INVESTIGATION RESULTS

5.1 MEC RI FIELD ACTIVITIES AND SCOPE

MEC RI field activities included transect layout, vegetation management, a UXO detector-aided surface survey, MEC management and treatment, DGM, and follow-up intrusive investigation of 80 DGM anomalies selected by the project team to characterize the extent of possible MEC/MPPEH still present at and below the ground surface, and to attempt to delineate a sanitary landfill reportedly inside the current site boundary. All MEC and landfill investigation (UXO detector-aided surface surveying, DGM, and intrusive investigation) was performed over the same 24 established transects, where each method of surveying provided a different detection capability. Transect layout and vegetation management was performed in January 2011, and again in May 2011, and MEC/landfill surveying, MEC management/ treatment, and intrusive MEC investigations were performed from May through June 2011. Prior to intrusive MEC investigation of suspect MEC DGM anomalies, the project team met on a conference call to discuss UXO detector-aided surface survey and DGM survey results, and reach agreement on an intrusive investigation plan. Because the MEC nature and extent was unknown, the MEC RI field activities were conducted across the site along 24, 50-foot spaced north-south trending transects (see Figure 4-1 for planned transect locations), rather than a focused search in one particular area. The MEC RI was conducted in accordance with the UFP-SAP (Tetra Tech NUS, 2010). As specified in the UFP-SAP, personnel utilized for the MEC surveys complied with the medical, training, experience, and educational requirements specified in the USACE Data Item Description (DID) MR-025 (2003b), Chapter 29 Code of Federal Regulations 1910.120, and the project-specific HASP.

5.2 MEC RI RESULTS

5.2.1 UXO Detector-Aided Surface Surveying

5.2.1.1 Results

UXO detector-aided surface surveying was conducted by UXO personnel using a Schonstedt GA-52Cx and White's Spectrum XLT to search the ground surface for potential MEC or MPPEH. MEC and MPPEH were logged and managed to allow follow-on DGM surveying activities. All MEC/MPPEH was treated in accordance with the DDESB approved ESS. All MDAS was inspected, segregated, certified, and containerized for transport by a certified recycler. A list of MDAS and MEC/MPPEH items located during the UXO detector aided surface survey is presented in Tables 5-1 and 5-2, respectively. Figure 5-1 shows locations of MEC/MPPEH discoveries by a yellow filled-circle symbol.

5.2.1.2 Deviations from Work Plan

MEC geophysical investigation activities were performed in accordance with the RI UFP-SAP (Tetra Tech, 2010). Minor changes to the project plan were documented in Field Change Requests, which are provided in Appendix B.

5.2.2 Digital Geophysical Mapping

The DGM surveys performed by Tetra Tech over the same 24 transects as the UXO survey involved three different types of geophysical instruments. The first instrument, EM31, was utilized to attempt to delineate a sanitary landfill, and the second and third instruments, G-858G and EM61, were used to search for anomalies that could represent MEC, and also to aid in the sanitary landfill objective. No deviations from plan occurred in DGM surveying at the site.

5.2.2.1 G-858G Magnetometer Results

A magnetometer survey was performed first using a Geometrics G-858G instrument to search for ferrous metallic anomalies that could be representative of ferrous MEC, and aid in sanitary landfill delineation. Data are presented on a base map in Figure 5-2 by color contour slices that use varying color shades to represent variations in instrument values along the transects. The color bar provided on the figure provides an indication of instrument values corresponding to the color contour shades. Background or non-anomalous instrument response is represented by a yellow color shade, and anomalous response is represented by green through blue (down the color bar) and orange through pink color shades (up the color bar). Highest amplitude responses are dark blue and pink-colored shades. No deviations from plan occurred in DGM surveying at the site.

DGM results are depicted in Figure 5-2, and 468 interpreted discreet anomalies are listed in Table C-1 of Appendix C by their coordinates, instrument responses, and half-widths (estimated anomaly size dimension in the direction of the survey line). The nature of the interpreted anomalies (i.e., whether they are munitions or not) cannot be determined from the geophysical data alone, but all interpreted anomalies could potentially represent MEC/MPPEH. Anomalies were selected from the UX-Detect module of Geosoft's Oasis Montaj software. Analytic signal responses above 10 were selected from the Blakely Test routine of the software. More anomalies could have been selected by lowering the analytic signal response picking threshold, or by selection of more peaks in the picking routine; however, anomalies were selected to represent locations with a higher chance of representing UXO given analysis of the response range over the dataset.

Predominantly, anomalies are located in the northern half of the site. Based on their large abundance, close grouping, and location north of an interpreted shallow groundwater boundary from EM31 surveying, it is logical to interpret a possible landfill here (given the site history of a landfill being present). Furthermore, the areal size of this anomaly concentration is on the order of six acres, which has been documented as a potential sanitary landfill size in the historical description of the site from the PA. The northeastern limit of the interpreted possible landfill is not clearly defined due to the prevalence of aboveground metal and by the survey limits in that portion of the site. Very few anomalies are evident in the southern half of the site, and this combined with an interpreted shallow groundwater zone from EM31 data in the southern half of the site, suggests that landfilling and anthropogenic burial in general was limited to the northern half of the site. The very northern part in the western half of the site does not appear to have much anomalous response or burial of ferrous metallic items, except in the very northwest corner around some aboveground metal that with respect to the other surrounding data, appears isolated. Aboveground debris is noted throughout the figure by a circle symbol, and parts of two broken fences are shown by a dashed line symbol. The presence or absence of subsurface metal in these locations cannot be determined from the geophysical data alone.

No diurnal correction to the survey data was needed from the established base station magnetometer, as base station values ranged slowly and moderately over the survey, and did not affect the anomaly interpretation or display of the data for its intended purposes. Base station data is included in Appendix C of this report for reference.

5.2.2.2 <u>EM61 Results</u>

A survey was performed using a Geonics EM61-MK2 (EM61) instrument to search for metallic anomalies that could be representative of MEC or MPPEH, and aid in sanitary landfill delineation. Data are presented on a base map in Figure 5-3 by color contour slices that use varying color shades to represent variations in instrument values along the transects. The color bar provided on the figure provides an indication of instrument values corresponding to the color contour shades. Background or non-anomalous instrument response is represented by a green to yellow color shade, and anomalous response is represented by blue (down the color bar) and orange through pink color shades (up the color bar). Highest amplitude responses are pink-colored shades. No deviations from plan occurred in DGM surveying at the site.

DGM results are depicted in Figure 5-3, and 341 interpreted discreet anomalies are listed in Table C-2 of Appendix C by their coordinates, instrument responses, and half-widths. EM61 can detect metal of various types which is represented in the interpreted anomalies. EM61 anomalies not in common with G-858G anomalies suggest that the anomaly is non-ferrous metal. The nature of the interpreted anomalies (i.e., whether they are munitions or not) cannot be determined from the geophysical data alone, but all interpreted anomalies could potentially represent MEC/MPPEH. These anomalies were selected from the UX-Detect module of Geosoft's Oasis Montaj software. Instrument responses above 10mV were selected from the Blakely Test routine of the software. More anomalies could have been selected by lowering the instrument response picking threshold, or by selection of more peaks in the picking routine; however, anomalies were selected to represent the locations with a higher chance of representing UXO given the response range over the dataset. As with the G-858G data, the high concentration of anomalies is located in the northern half of the site and based on their large abundance, close grouping, and location north of the interpreted shallow groundwater boundary, it is logical to interpret a possible landfill here from this data as well. The northeastern limit of the interpreted possible landfill is not clearly defined due to the prevalence of aboveground metal and the survey limits in that portion of the site. Very few anomalies are evident in the southern half of the site, and this combined with the interpreted shallow groundwater in the southern half of the site, suggests that landfilling and anthropogenic burial in general was limited to the northern half of the site. The very northern part in the western half of the site does not appear to have much anomalous response or burial of metallic items, except in the very northwest corner around some aboveground metal that with respect to the other surrounding data, appears isolated.

5.2.2.3 EM31 Results

DGM was performed using a man-portable Geonics, Ltd. EM31-MK2 (EM31) unit to attempt to delineate a sanitary landfill and provide a search for potential large caches of munitions items. EM31 is a terrain conductivity instrument that can detect anomalies caused by stark shallow (top fifteen feet) ground conductivity changes, and also anomalies caused by all types of large metal as well. Data are presented on a base map in Figure 5-4 as color contour slices that use varying color shades to represent variations in instrument values along the transects. A color bar scale is included on the figure to show instrument values that correspond to the various color shades used as contours in the data slices. Background or non-anomalous instrument response is represented by a dark blue color shade, and anomalous response is represented by green through pink color shades on the contour map and color bar scale. Highest amplitude responses are pink-colored shades.

Many anomalies are evident in the data, and two very broad anomalous responses (each covering several acres in size) are evident by pink color contour in the northern and southern portions of the site. Judging by the size and coincident location of the large southern pink-colored anomalous response with the lowlands and mudflats of the site, this anomalous response is interpreted as being caused by shallow groundwater, and the boundary is shown by a solid line symbol on the figure. The northern large anomalous response is interpreted to possible landfilling and disposal (given the historical description of a site landfill being present), and a short-dashed line symbol is used to show the interpreted landfill/disposal on Figure 5-4. Locations of aboveground disposed items were noted in the field, and their numerous locations shown by circle symbol on the figure. Aboveground disposal items are interspersed among the larger subsurface anomalous response, and it should be noted that it is not possible from the geophysical data alone to determine if subsurface landfill is present in areas where anomalous readings appear evident from surface metal and debris. Therefore, the interpretation of landfill has been combined with disposal to account for intermingled surface and subsurface anomalous responses. Some of that interpreted landfill (northern portion of it) does not have corresponding magnetometer or EM61 anomalies, inferring that non-metallic landfill or ash, or perhaps different construction fill may also be present in those locations. Also, the EM31, while good at detecting large metal (e.g., 55-gallon drum size), is not good at detecting small metal. Some instrument sensitivity in detecting large metal may have been lost under the very electrically conductive site conditions that made it necessary to use the least sensitive instrument range (1000 scale) on the instrument. Consequently, the interpreted landfill/disposal was expanded based on interpretation of the G-858G and EM61 data, which are more sensitive to metal and can detect a greater response from metallic items.

5.2.2.4 Data Quality Review

Appendix D contains the MEC Data Quality Review and Usability Checklist for the RI. A qualified UXO survey team conducted the detector-aided surface survey, and anomaly excavation. A qualified project geophysicist conducted the DGM. The data collected fulfilled the procedure, coverage, and accuracy requirements of the SAP. QA/QC documentation for the MEC DGM phase of the investigation is included in Appendix C. All MEC results have been verified, and the collected data are usable.

5.2.3 Anomaly Intrusive Investigation

Following DGM surveying, cumulative UXO detector-aided and DGM survey results and interpretation was prepared and presented on a conference call to the project team for consensus on follow-up intrusive investigation approach. Tetra Tech prepared maps showing UXO surface finds, and suspect subsurface anomalies that could potentially represent MEC. A higher number of interpreted anomalies was determined from the magnetometer (G-858G) data (many of these anomalies in common with the EM61 dataset), and the magnetometer data was used to select intrusive locations. Visual Sample Plan (VSP) modeling was applied to the 468 anomalies, and it was determined that according to VSP, 55 anomalies would need to be intrusively investigated and found not to contain UXO for 95 percent confidence that 95 percent of the interpreted anomalies would be free of UXO. Twenty-Five additional intrusive locations were selected to learn about anomalies near the edges of the site and whether expanded investigation would be needed to capture the MEC or MPPEH extent. Figure 5-5 shows locations of the 468 identified G-858 anomalies by a green cross symbol for those that were intrusively investigated for MEC/MPPEH (the DGM anomaly number is included beside intrusively investigated anomalies) and by a magenta x symbol for those anomalies not intrusively investigated.

The anomaly intrusive investigation resulted in 3 of the 80 locations containing MEC/MPPEH/MDAS and 2 additional locations containing MDAS. The sub-surface MDAS and sub-surface MEC/MPPEH are listed in Tables 5-3 and 5-4, respectively.

Appendix B contains the Anomaly Target Field Excavation Tracking Form (Dig List) listing all items recovered from the anomaly intrusive investigation. Figure 5-1 displays MEC/MPPEH discoveries by a yellow filled-circle symbol. Also shown are the locations of DGM anomalies differentiated by which anomalies were intrusively investigated, as investigation of a number of anomalies uncovered non-munitions related debris that would be expected for a landfill/disposal area.

5.3 MEC/MPPEH MANAGEMENT OPERATIONS

During the RI detector-aided surface survey operation and intrusive investigations, MEC items determined not safe to move were treated using Blow-in-Place (BIP) procedures. MEC that could not be treated on the same day was secured by the SUXOS and was maintained until treatment with a donor charge or until responsibility for its security was transferred per instructions from the NASCC Point of Contact (POC). MEC determined to be safe to move were secured in a Type II storage magazine until treated with a donor charge. MPPEH determined to be MDEH were secured in a Type II storage magazine until treated with a donor charge. MPPEH determined to be “explosive free” was certified as MDAS by the SUXOS and UXOQCS. MDAS was consolidated in a container located near the site, 600 feet southeast of Runway 31 as determined by the NASCC POC. The container was kept under the custody of the SUXOS and was sealed after each addition of MDAS, until the container was turned over to the qualified recycler, (Demil Metals Inc.). Prior to opening the container the custody seal was inspected. Demil Metals Inc. was responsible for the custody of the material, transportation, maintaining the accompanied certification paperwork and demilitarization/shredding if required after receipt. All other recovered scrap was left at the site at a location designated by the NASCC POC

A total of 12 demolition shots were performed (four shots – May 27, 2011), (three shots – June 10, 2011), (five shots – June 17, 2011). All activities were performed in a safe and effective manner. All demolition operations were deemed successful. This includes the consumption of all donor charges and energetic materials being consumed on the day received.

TABLE 5-1

**MDAS TRACKING LOG – SURFACE SURVEY ITEMS
DETECTOR AIDED SURFACE SURVEY
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS**

Control No.	Item	Picture No.	Area Location	Northing	Easting	Date Found
53	(1) 2.75 inch Fins (1) Cartridge Actuated Device (CAD)	DSCN0040	Transect 9	17143089.85	1328962.84	5/17/2011
54	40mm Practice	DSCN0041	Transect 9	17143041.65	1328961.39	5/17/2011
55	(33) 20mm Cartridge cases	DSCN0042	Transect 10	17143014.56	1329011.11	5/17/2011
56	Flare Cartridge	DSCN0043	Transect 14	17143056.32	1329209.42	5/17/2011
30	20mm Target Practice (TP)	DSCN0051	Transect 5	17143035.60	1328761.36	5/24/2011
33	AN-M23 Practice Bomb	DSCN0054	Transect 5	17143027.93	1328758.12	5/24/2011
35	(2) 20mm Target Practice	DSCN0056	Transect 5	17143029.16	1328762.11	5/24/2011
36	CAD & OJIVE 20mm	DSCN0057	Transect 5	17143026.03	1328759.56	5/24/2011
37	2.25" Ballistic Nose	DSCN0058	Transect 5	17143017.61	1328761.13	5/24/2011
57	CAD	DSCN0060	Transect 6	17143041.61	1328812.92	5/25/2011
40	(4) 3.5" Rockets	DSCN0061	Transect 6	17143031.63	1328810.36	5/25/2011
43	(27) CAD's	DSCN0065	Transect 6	17142989.65	1328812.72	5/25/2011
44	(4) 20mm TP, (9) 20mm Cartridge	DSCN0066	Transect 6	17142989.65	1328812.72	5/25/2011
45	(4) 40mm Cartridge cases	DSCN0067	Transect 6	17142989.65	1328812.72	5/25/2011
46	(23) Small Arms Cart Cases	DSCN0068	Transect 6	17142989.65	1328812.72	5/25/2011
47	CAD	DSCN0069	Transect 7	17143018.45	1328860.60	5/26/2011
48	40mm Shape	DSCN0070	Transect 7	17143017.85	1328856.66	5/26/2011
49	(4)CAD's,(2)40mm Fuze parts (1) 40mm Cartridge Case	DSCN0072	Transect 7	17143022.46	1328859.54	5/26/2011
50	(4)20mmTP,(1)40mm Practice. (4)CAD's,(15) Assorted Cartridge Cases, (1) 40mm Cartridge Case, (1)40mm Fuze parts	DSCN0073	Transect 7	17143014.64	1328863.13	5/26/2011
51	(1)2.75" Fins, (16) Assorted Cartridge Cases,	DSCN0074	Transect 7	17143008.79	1328863.49	5/26/2011
52	(3)20mm TP,(8)40mm Assorted pieces (4) CAD's, (2) Assorted Cartridge Cases,	DSCN0075	Transect 7	17143004.00	1328858.32	5/26/2011
59	(2) 2.75" fins	DSCN0087	Transect 5	17143029.47	1328760.84	5/28/2011

TABLE 5-2

MEC/MPPEH TRACKING LOG – SURFACE SURVEY ITEMS
DETECTOR AIDED SURFACE SURVEY
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Control No.	Item	Picture No.	Area Location	Northing	Easting	Date Found
25	40mm Grenade	DSCN0035	Transect 7	17143028.59	1328839.93	1/12/2011
26	40mm Grenade	DSCN0036	Transect 7	17143012.45	1328855.17	1/12/2011
27	2.75 inch Warhead	DSCN0033	Transect 4	17143043.01	1328713.01	5/16/2011
28	37mm	DSCN0037	Transect 8	17142961.05	1328915.13	5/16/2011
29	AN-M23	DSCN0050	Transect 5	17143059.40	1328761.87	5/24/2011
31	AN-M23	DSCN0052	Transect 5	17143634.47	1328760.10	5/24/2011
32	AN-M23	DSCN0053	Transect 5	17143030.14	1328758.54	5/24/2011
34	AN-M23	DSCN0055	Transect 5	17143029.35	1328756.93	5/24/2011
38	2.75" Warhead	DSCN0059	Transect 5	17143026.48	1328758.58	5/24/2011
39	2.75" Warhead	DSCN0059	Transect 5	17143026.48	1328758.58	5/24/2011
58	AN M23	DSCN0085	Transect 5	17143034.18	1328763.47	5/28/2011
60	AN M23	DSCN0088	Transect 5	17143023.16	1328759.43	5/28/2011
61 & 62	(2) 2.75" Warheads	DSCN0089	Transect 5	17143009.10	1328760.62	5/28/2011
74	(3ea) 3.5 inch Rocket	DSCN0061	Transect 6	17143031.63	1328810.36	5/25/2011

TABLE 5-3

MDAS TRACKING LOG – ANOMALY INTRUSIVE INVESTIGATION ITEMS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Control No.	Item	Picture No.	Area Location	Northing	Easting	Date Found
Burial Pit	(300+) 20mm TP	20	Transect 5	17143034.53	132870.91	6/8/2011
Burial Pit	(5) 2.75" rocket warhead	19	Transect 5	17143034.53	132870.91	6/8/2011
Burial Pit	2.25" rocket motor venturi	21	Transect 5	17143000.57	1328762.49	6/8/2011
Burial Pit	(5) CAD					
Burial Pit	(3) CAD Shipping Containers					
Burial Pit	(2) AN-M23					

TABLE 5-4

MEC/MPPEH TRACKING LOG – ANOMALY INTRUSIVE INVESTIGATION ITEMS
INCINERATOR DISPOSAL SITE
NALF CABANISS, CORPUS CHRISTI, TEXAS

Control No.	Item	Picture No.	Area Location	Northing	Easting	Date Found
70	(106ea) AN-M23 Practice Bomb	DSCN0096	Transect 5	17143034.53	1328750.91	6/8/2011
71	(5ea) 2.75 inch Rocket Warhead	DSCN0102	Transect 5	17143022.37	1328759.03	6/8/2011
73	2.75 inch Rocket Warhead	DSCN0123	Transect 5	17143000.57	1328762.49	6/17/2011

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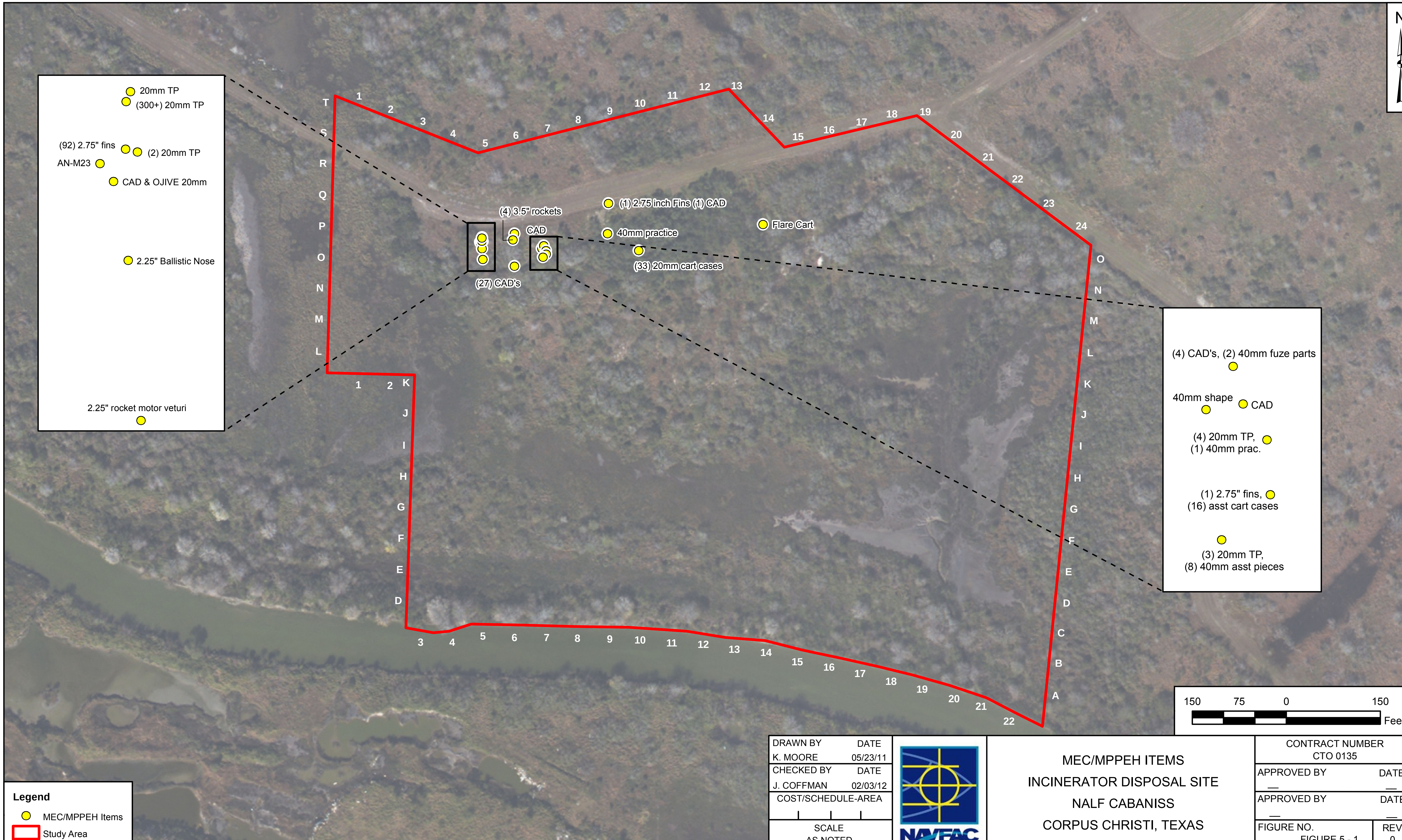

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MEC/MPPEH ITEMS
INCINERATOR DISPOSAL SITE
NALF CABANISS
CORPUS CHRISTI, TEXAS

CONTRACT NUMBER CTO 0135	
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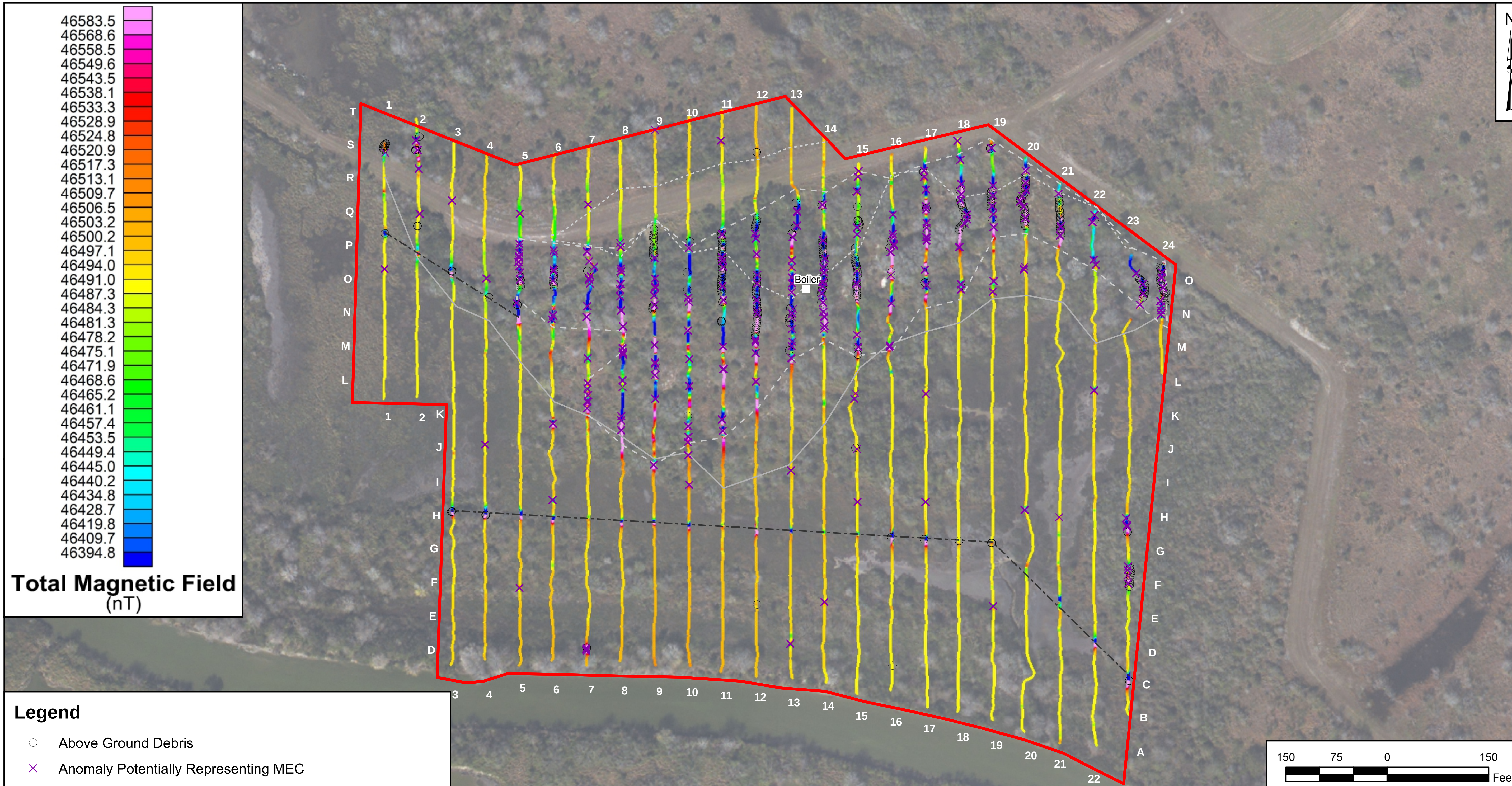

Legend

- ○ Above Ground Debris
- × Anomaly Potentially Representing MEC
- EM31-inferred Possible Landfill Boundary/Construction Fill
- EM31-inferred Shallow Groundwater (south of boundary line)
- G-858G-inferred Possible Landfill Boundary
- Broken Fence
- Study Area

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Legend

- ○ Above Ground Debris
- × Anomaly Potentially Representing MEC
- EM31-inferred Possible Landfill Boundary/Construction Fill
- EM31-inferred Shallow Groundwater
- G-858G-inferred Possible Landfill Boundary
- Broken Fence
- Study Area

DRAWN BY K. MOORE	DATE 5/31/11	NAVFAC	EM61 COLOR CONTOUR MAP AND INTERPRETATION INCINERATOR DISPOSAL SITE NALF CABANISS CORPUS CHRISTI, TEXAS	CONTRACT NUMBER CTO 0135
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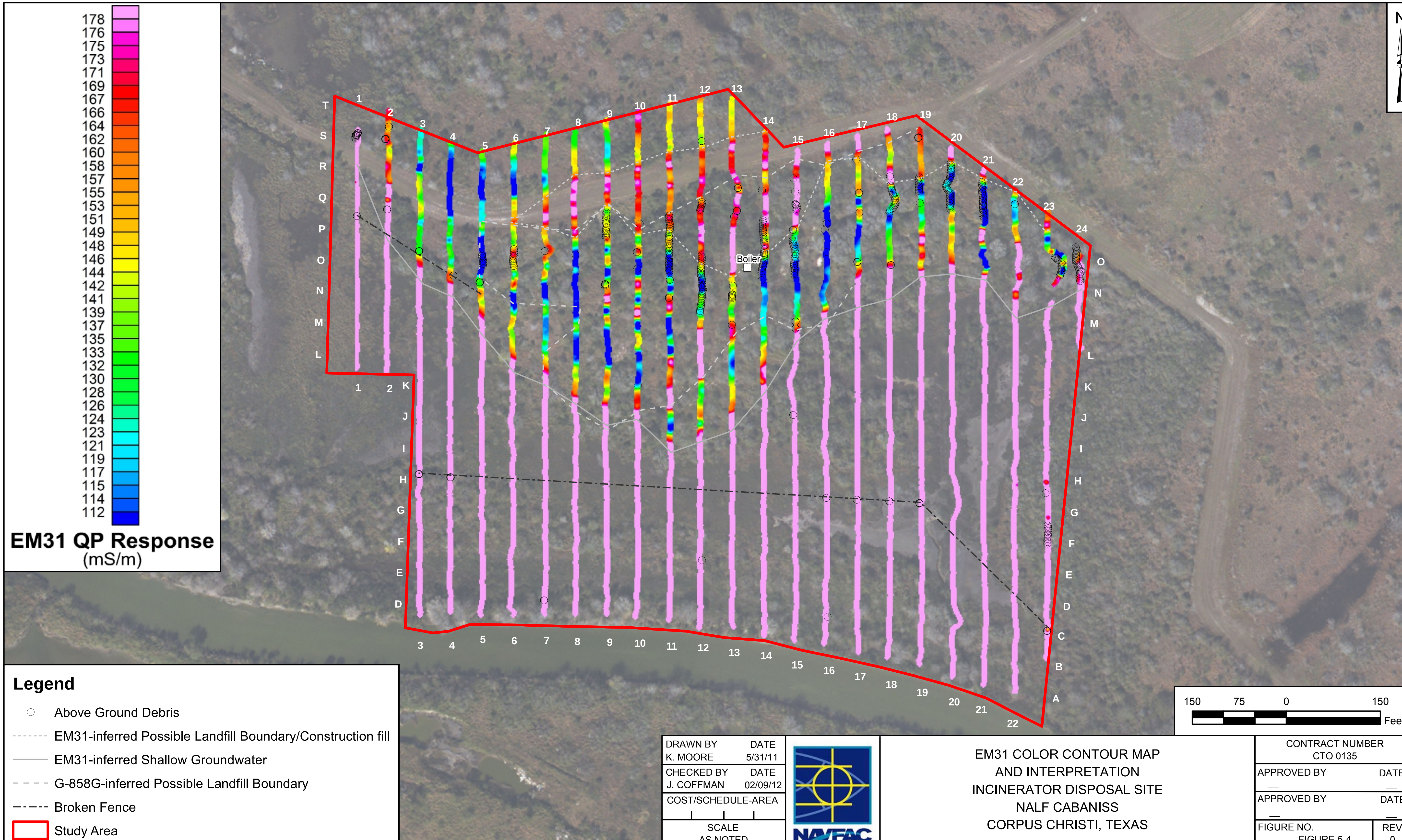

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NAVFAC

EM31 COLOR CONTOUR MAP
AND INTERPRETATION
INCINERATOR DISPOSAL SITE
NALF CABANISS
CORPUS CHRISTI, TEXAS

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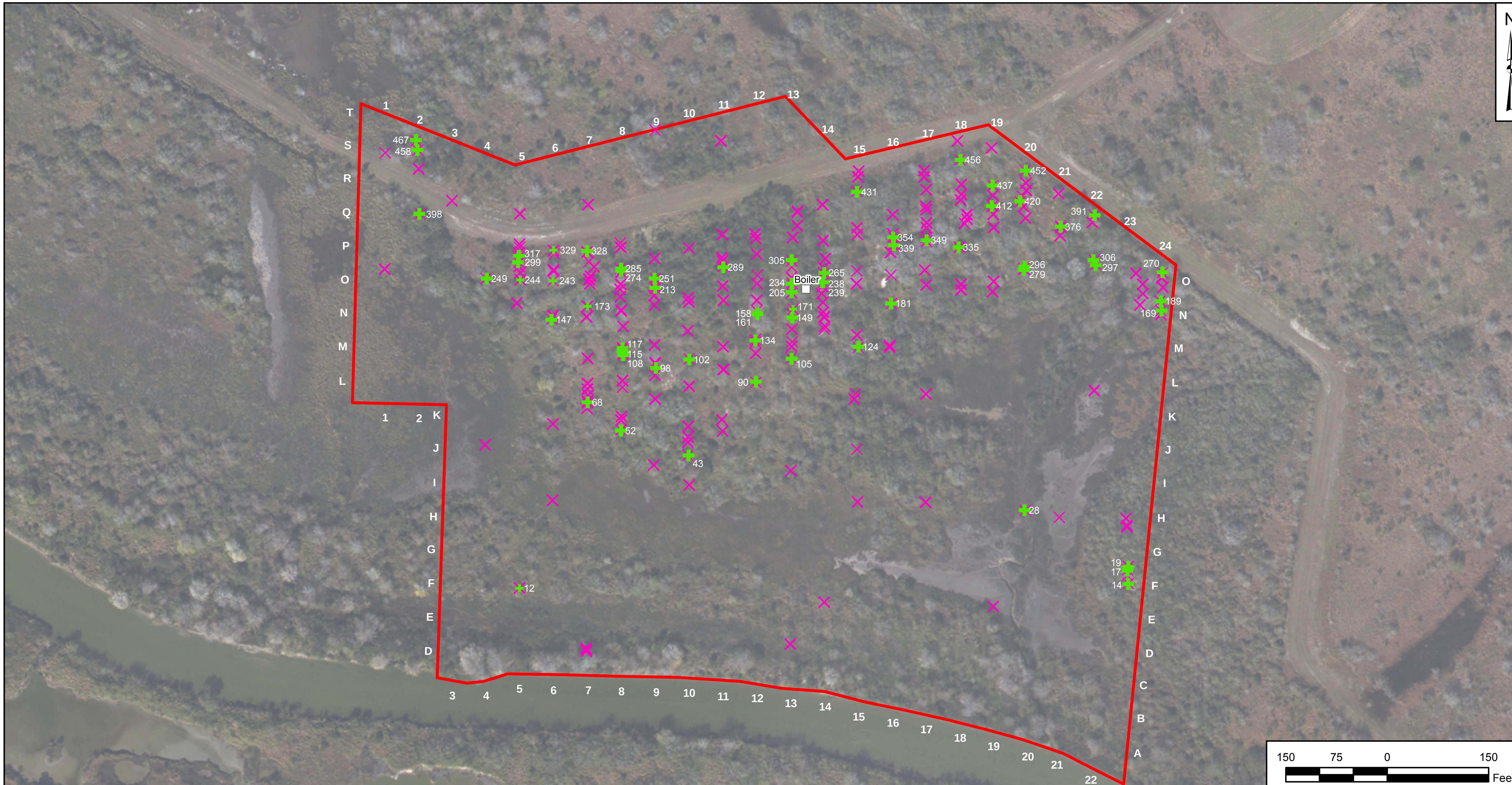
FIGURE NO. FIGURE 5-4	REV 0

P:\GIS\COURPUSCHRISTI_NAS\MXD\INCINERATOR_DGM_SURVEY.MXD 02/09/12 JN



Legend

Anomaly Further Investigation

- Yes (with DGM anomaly number)
- No
- Landfill/Debris Area
- Study Area

DRAWN BY K. MOORE	DATE 06/02/11
CHECKED BY J. COFFMAN	DATE 02/09/12
COST/SCHEDULE-AREA	
SCALE AS NOTED	

NAVFAC

RESULTS AND INTRUSIVE INVESTIGATION LOCATIONS
DGM SURVEY
INCINERATOR DISPOSAL SITE
NALF CABANISS
CORPUS CHRISTI, TEXAS

CONTRACT NUMBER CTO 0135	
APPROVED BY __	DATE __
APPROVED BY __	DATE __
FIGURE NO. FIGURE 5 - 5	REV 0

6.0 CONCLUSIONS

6.1 SUMMARY

MEC geophysical survey investigations were performed along 24 transects planned in the RI UFP-SAP. Along these 24 transects UXO detector-aided surface surveys were utilized in 5- to 10 foot survey width to search for, and if detected, to locate MEC/MPPEH before removing it and other metal from the transects. Twenty surface MEC/MDEH items and numerous MDAS items were recovered along eight transects in the northern portion of the site during the detector-aided surface survey.

Next, DGM surveying was conducted along a single line along the planned transect paths to help delineate a reported landfill and to search for subsurface anomalies that could potentially represent MEC/MPPEH items. A potential landfill boundary in the northern portion of the site and anomalies potentially representing MEC/MPPEH were interpreted from the DGM data. The project team selected 80 of the 468 interpreted anomalies for intrusive investigation. The location of anomalies for intrusive investigation were selected randomly (using VSP) with the addition of multiple locations biased toward specific areas to ensure adequate coverage around the investigation area. The results of the intrusive investigation yielded 112 MEC/MDEH items and numerous MDAS subsurface items in the northwestern portion of the site along transects 5, 6, and 7.

No surface or subsurface MEC/MPPEH was discovered within 100 feet of the survey boundary, therefore expanded survey coverage was not required by the work plan (UFP-SAP).

6.2 CONCLUSIONS AND RECOMMENDATIONS

This MEC geophysical investigation conducted as part of an RI uncovered 132 MEC/MDEH items and 375 pounds of MDAS. These discovered items were confined to the northern third of the site.

The MEC geophysical investigation coverage spanned across the investigation area, but did not include a complete or dense coverage of the site. Data was generally limited to 50-foot spaced transects in one direction (north-south) across the site.

Based on general mobilization around the site to perform the MEC RI work, it is known that more MEC/MPPEH is present at the surface (visually observed between survey transects). It is also logical to conclude that more subsurface MEC/MPPEH may be present in the northern portion of the site, where the MEC/MPPEH and the majority of the DGM anomalies were discovered or detected.

If the objective is to further reduce and or eliminate MEC/MPPEH hazard, then continued intrusive investigation of the RI DGM anomalies and expanding survey coverage within the northern half of the survey area boundary is recommended.

REFERENCES

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Tetra Tech NUS, 2009b. After Action Report for Munitions and Explosives of Concern Time Critical Removal Action Incinerator Disposal Site, May.

Tetra Tech NUS, 2010. Sampling and Analysis Plan for Munitions Response Program Incinerator Disposal Site Munitions and Explosives of Concern Remedial Investigation, October.

USACE (U.S. Army Engineering and Support Center), Huntsville, AL. Guidance Documents:

- USACE (2003a), DID OE-005-05, Geophysical Investigation Plan, Revised, 1 December 2003.
- USACE (2003b). DID MR-025, Personnel Resume, Revised, 1 December 2003.

Appendix A
Photographic Log

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 1 (DSCN0001)	
GRID/ITEM No.: NA	
COORDINATES: NA	
DESCRIPTION: Putting In IVS	
PHOTO 2 (DSCN0002)	
GRID/ITEM No.: NA	
COORDINATES: NA	
DESCRIPTION: Putting In IVS	

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 3 (DSCN0003)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Putting In IVS

PHOTO 4 (DSCN0004)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Putting In IVS

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 5 (DSCN0005)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

UXO Tech GPS logging IVS End Point

PHOTO 6 (DSCN0006)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Lg. Seed Item

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 7 (DSCN0007)	
GRID/ITEM No.: NA	
COORDINATES: NA	
DESCRIPTION: Med. Seed Item	
PHOTO 8 (DSCN0008)	
GRID/ITEM No.: NA	
COORDINATES: NA	
DESCRIPTION: Small Seed Item	

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 9 (DSCN0010) GRID/ITEM No.: NA COORDINATES: NA DESCRIPTION: UXO Team meeting with SUXOS	
PHOTO 10 (DSCN0011) GRID/ITEM No.: NA COORDINATES: NA DESCRIPTION: Vegetation Cutting	

PHOTO 11 (DSCN0012)	
GRID/ITEM No.: NA	
COORDINATES: NA	
DESCRIPTION: Vegetation Cutting Transect #1	
PHOTO 12 (DSCN0013)	
GRID/ITEM No.: NA	
COORDINATES: NA	
DESCRIPTION: Vegetation Cutting Transect #1	

PHOTO 13 (DSCN0014)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

IVS Item #1 Small

Seed #D121

PHOTO 14 (DSCN0015)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

IVS Item #1 Small

Seed #D121

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 15(DSCN0016)	
GRID/ITEM No.: NA	
COORDINATES: NA	
DESCRIPTION: IVS Item #2 Small Aluminum Seed #D120	
PHOTO 16(DSCN0017)	
GRID/ITEM No.: NA	
COORDINATES: NA	
DESCRIPTION: IVS Item #2 Small Aluminum Seed #D120	

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 17 (DSCN0018)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

IVS Item #3
Medium

Seed #D123

PHOTO 18 (DSCN0020)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

IVS Item #3 Medium

Seed #D123

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 19 (DSCN0021)	
GRID/ITEM No.: NA	
COORDINATES: NA	
DESCRIPTION: IVS Item #4 Large Seed #D125	
PHOTO 20 (DSCN0022)	
GRID/ITEM No.: NA	
COORDINATES: NA	
DESCRIPTION: IVS Item #4 Large Seed #D125	

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 21 (DSCN0025)

GRID/ITEM No.:
NA

COORDINATES:
N: 17143013.39
E: 1328562.45

DESCRIPTION:

Buried Seed
Transect #1

Seed B 01

PHOTO 22 (DSCN0026)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Brush Cutting
Transect #1 looking
South

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 23 (DSCN0027)	
GRID/ITEM No.: NA	
COORDINATES: NA	
DESCRIPTION: Brush Cutting Transect #1 looking North	
PHOTO 24 (DSCN0028)	
GRID/ITEM No.: NA	
COORDINATES: N: 17142992.23 E: 1328611.8	
DESCRIPTION: Surface Seed Transect #3 Seed #07	

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 25 (DSCN0029)

GRID/ITEM No.:
NA

COORDINATES:
N: 17142821.19
E: 1328762.64

DESCRIPTION:

Surface Seed
Transect #8

Seed #05

PHOTO 26 (DSCN0030)

GRID/ITEM No.:
NA

COORDINATES:
N: 17142711.38
E: 1328815.95

DESCRIPTION:

Surface Seed
Transect #6

Seed #01

PHOTO 27 (DSCN0031)

GRID/ITEM No.:
NA

COORDINATES:
N: 17143167.16
E: 1328711.81

DESCRIPTION:

Surface Seed
Transect #4

Seed #12

PHOTO 28 (DSCN0032)

GRID/ITEM No.:
4 / 27

COORDINATES:
N: 17143043.01
E: 1328713.01

DESCRIPTION:

2.75 Inch Rocket
Warhead

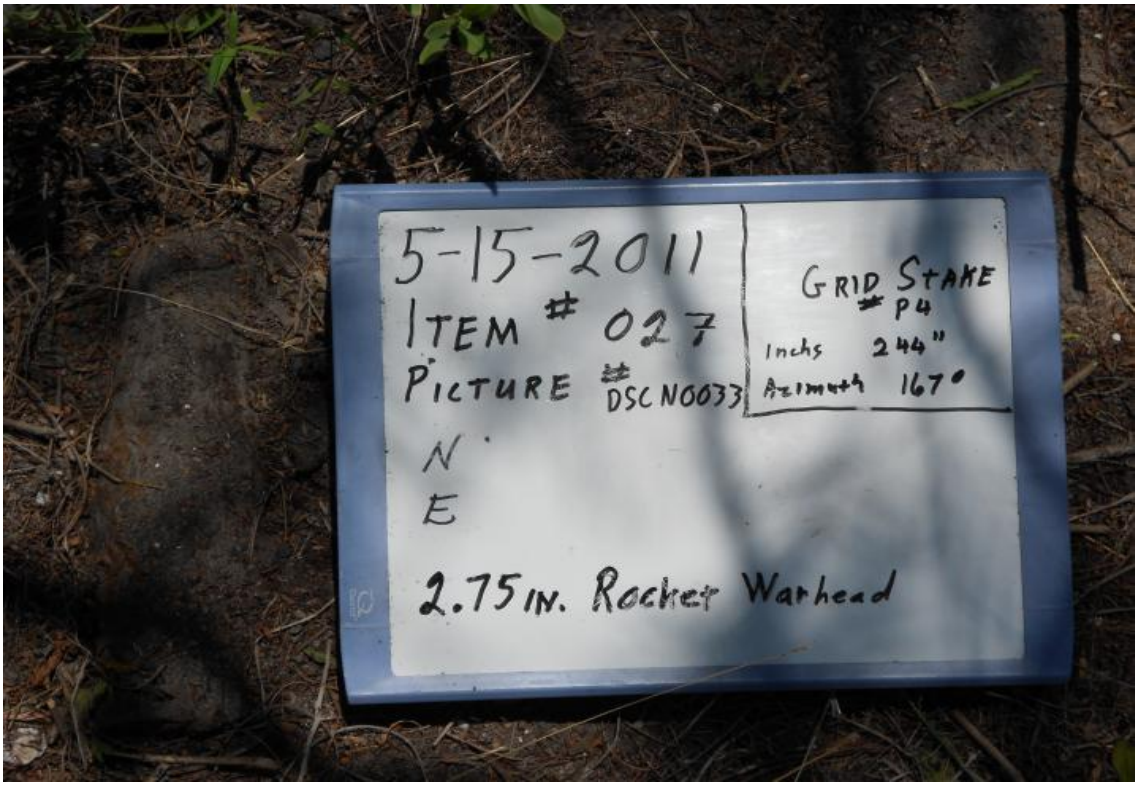
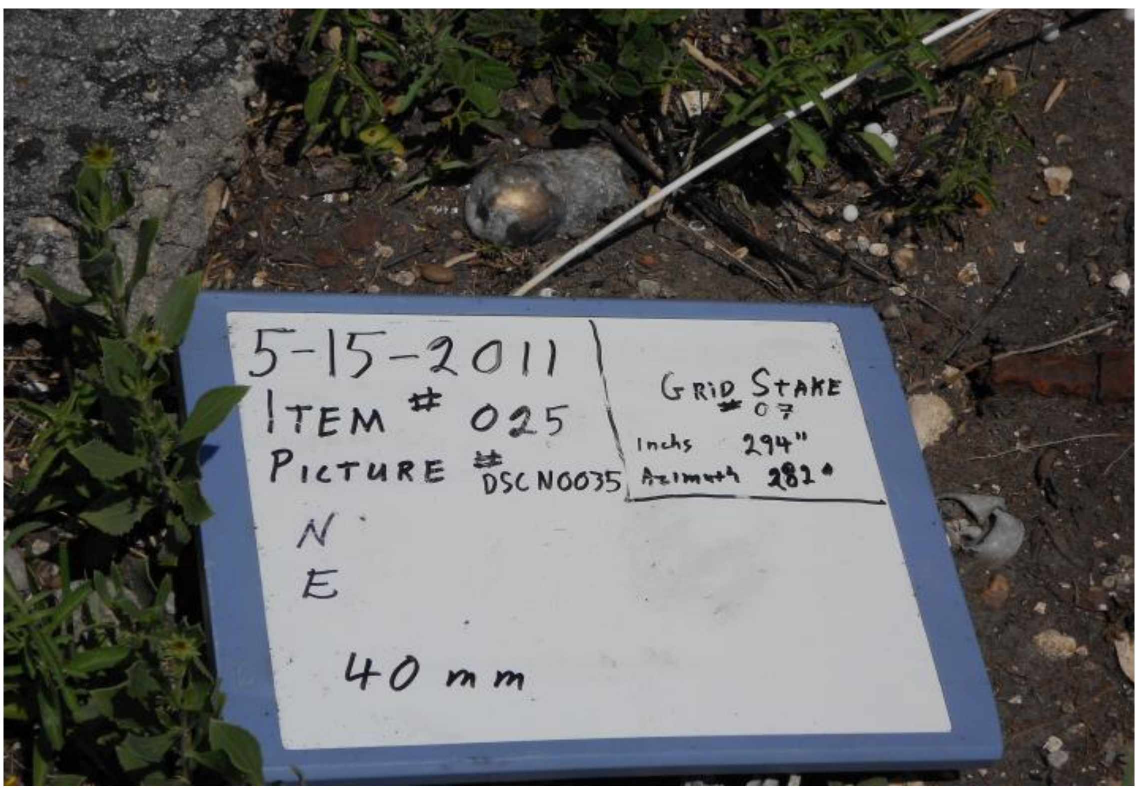
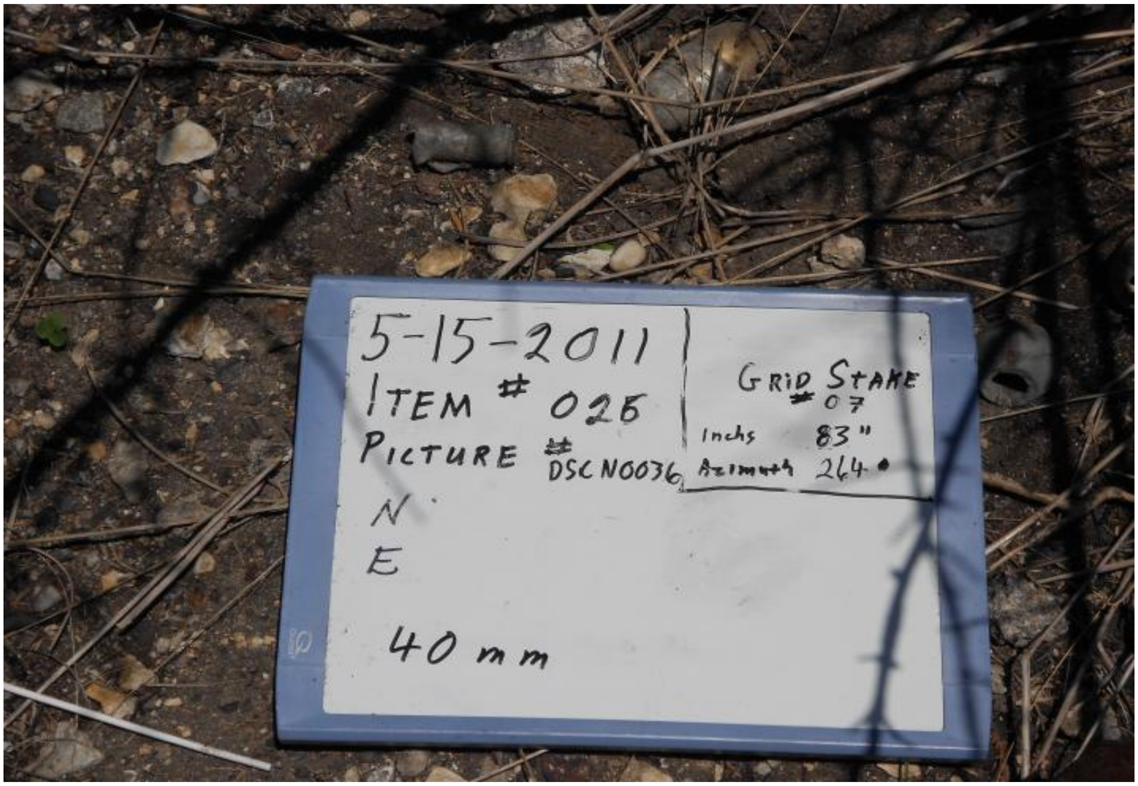
PHOTO 29 (DSCN0033) GRID/ITEM No.: P4 / 27 COORDINATES: N: 17143043.01 E: 1328713.01 DESCRIPTION: 2.75 Inch Rocket Warhead	
PHOTO 30 (DSCN0035) GRID/ITEM No.: O7 / 25 COORDINATES: N: 17143028.59 E: 1328839.93 DESCRIPTION: Putting In IVS	

PHOTO 31 (DSCN0036)	
GRID/ITEM No.: O7 / 26	
COORDINATES: N: 17143012.45 E: 1328855.17	
DESCRIPTION: 40 mm Grenade	
PHOTO 32 (DSCN0037)	
GRID/ITEM No.: N8 / 28	
COORDINATES: N: 17142961.05 E: 1328915.13	
DESCRIPTION: 37 mm Projectile	

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 33 (DSCN0038)

GRID/ITEM No.:
NA

COORDINATES:
N: 17142888.91
E: 1329011.84

DESCRIPTION:

Surface Seed
Transect #10

Seed #06

PHOTO 34 (DSCN0039)

GRID/ITEM No.:
NA

COORDINATES:
N: 17142655.34
E: 1329064.33

DESCRIPTION:

Surface Seed
Transect #11

Seed #05

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 35 (DSCN0040)

GRID/ITEM No.:
Q9 / 53

COORDINATES:
N: 17143089.85
E: 1328962.88

DESCRIPTION:

(1) 2.75 inch
Rocket Fins

(1) CAD

MDAS

PHOTO 36 (DSCN0041)

GRID/ITEM No.:
Q9 / 54

COORDINATES:
N: 17143041.65
E: 1328961.39

DESCRIPTION:

40 mm Practice
Grenade

MDAS

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 37 (DSCN0042)

GRID/ITEM No.:
10 / 55

COORDINATES:
N: 17143014.56
E: 1329011.11

DESCRIPTION:

(30) 20 mm
Cartridge Casings

MDAS

PHOTO 38 (DSCN0044)

GRID/ITEM No.:
14 / 56

COORDINATES:
N: 17143056.32
E: 1329209.42

DESCRIPTION:

Flare Cartridge

MDAS

PHOTO 39 (DSCN0045)	
GRID/ITEM No.: NA	
COORDINATES: NA	
DESCRIPTION: GEO with G858	
PHOTO 40 (DSCN0046)	
GRID/ITEM No.: NA	
COORDINATES: NA	
DESCRIPTION: GEO with G858	

PHOTO 41 (DSCN0047)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

GEO with G858

PHOTO 42 (DSCN0048)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

GEO with G858

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 43 (DSCN0049)	
GRID/ITEM No.: NA	
COORDINATES: NA	
DESCRIPTION: GEO with G858	
PHOTO 44 (DSCN0050)	
GRID/ITEM No.: 5 / 29	
COORDINATES: N: 17143059.40 E: 1328761.87	
DESCRIPTION: AN-MK23 Practice Bomb MEC	

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 45 (DSCN0051)

GRID/ITEM No.:
5 / 30

COORDINATES:
N: 17143035.60
E: 1328761.36

DESCRIPTION:

20 mm TP

MDAS

PHOTO 46 (DSCN0052)

GRID/ITEM No.:
5 / 31

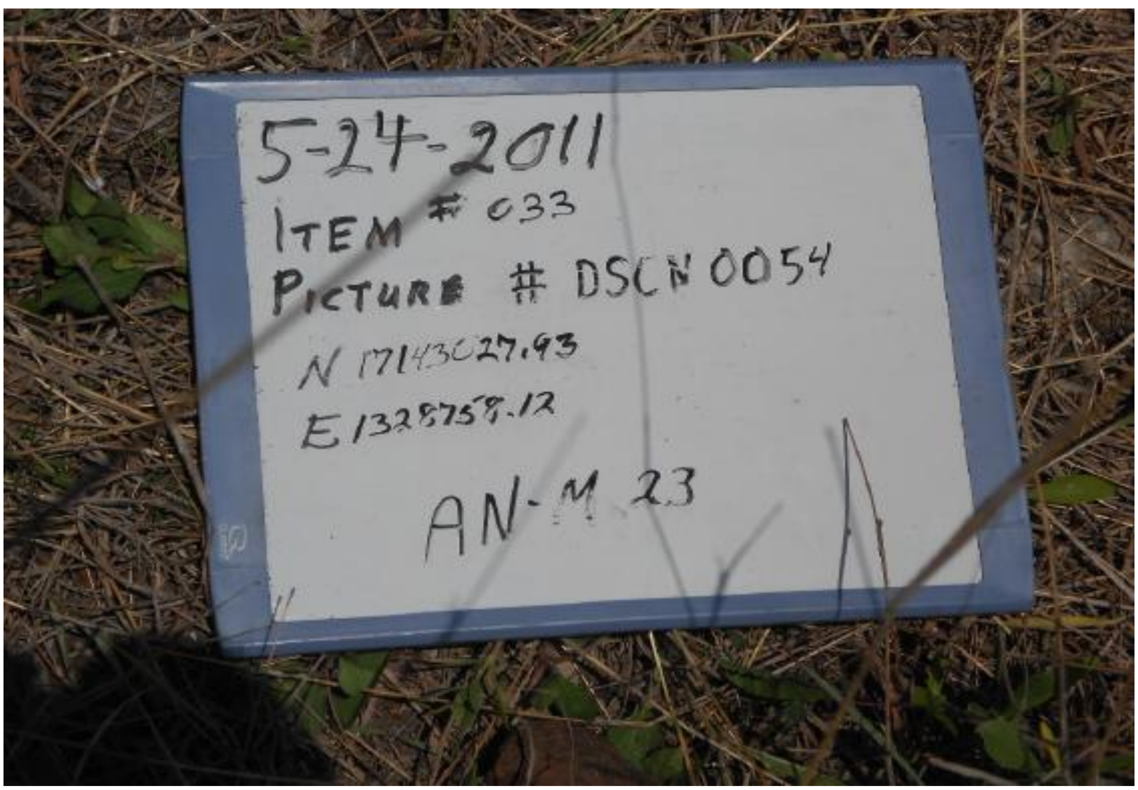
COORDINATES:
N:17143634.47
E: 1328760.10

DESCRIPTION:

AN-MK23 Practice Bomb

MEC

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 47 (DSCN0053) GRID/ITEM No.: 5 / 32 COORDINATES: N:17143030.14 E: 1328758.54 DESCRIPTION: AN-MK23 Practice Bomb MEC	
PHOTO 48 (DSCN0054) GRID/ITEM No.: 5 / 33 COORDINATES: N: 17143027.93 E: 1328758.12 DESCRIPTION: AN-MK23 Practice Bomb MDAS	

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 49 (DSCN0055)

GRID/ITEM No.:
5 / 34

COORDINATES:
N: 17143029.35

DESCRIPTION:
AN-MK23 Practice Bomb

MEC

PHOTO 50 (DSCN0056)

GRID/ITEM No.:
5 / 35

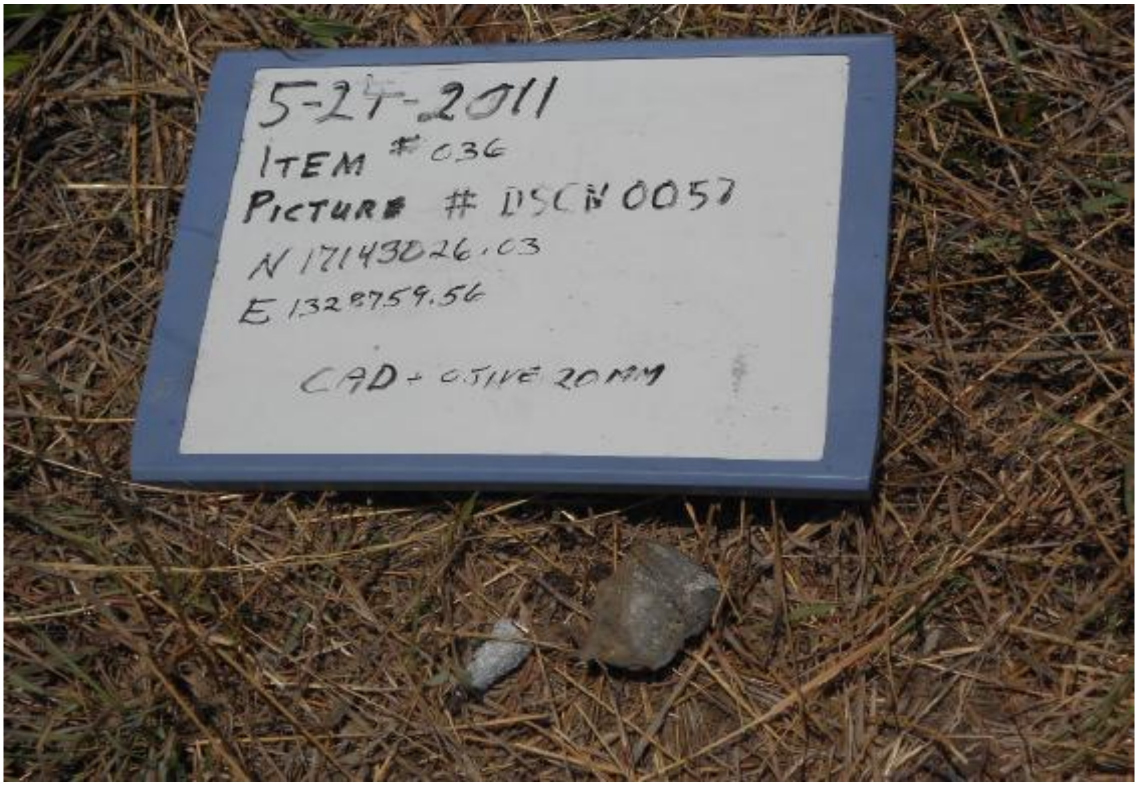
COORDINATES:
N: 17143029.16
E: 1328762.11

DESCRIPTION:

20 mm TP

MDAS

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 51 (DSCN0057) GRID/ITEM No.: 5 / 36 COORDINATES: N: 17143026.03 E: 1328759.56 DESCRIPTION: (1) CAD (1) Ojive 20mm MDAS	
PHOTO 52 (DSCN0058) GRID/ITEM No.: 5 / 37 COORDINATES: N: 17143017.61 E: 1328761.13 DESCRIPTION: 2.25 inch Ballistic Nose MDAS	

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 53 (DSCN0059)

GRID/ITEM No.:
5 / 38,39

COORDINATES:
N: 17143026.48
E: 1328758.58

DESCRIPTION:

(2) 2.75 inch Rocket Warhead
MEC

PHOTO 54 (DSCN0060)

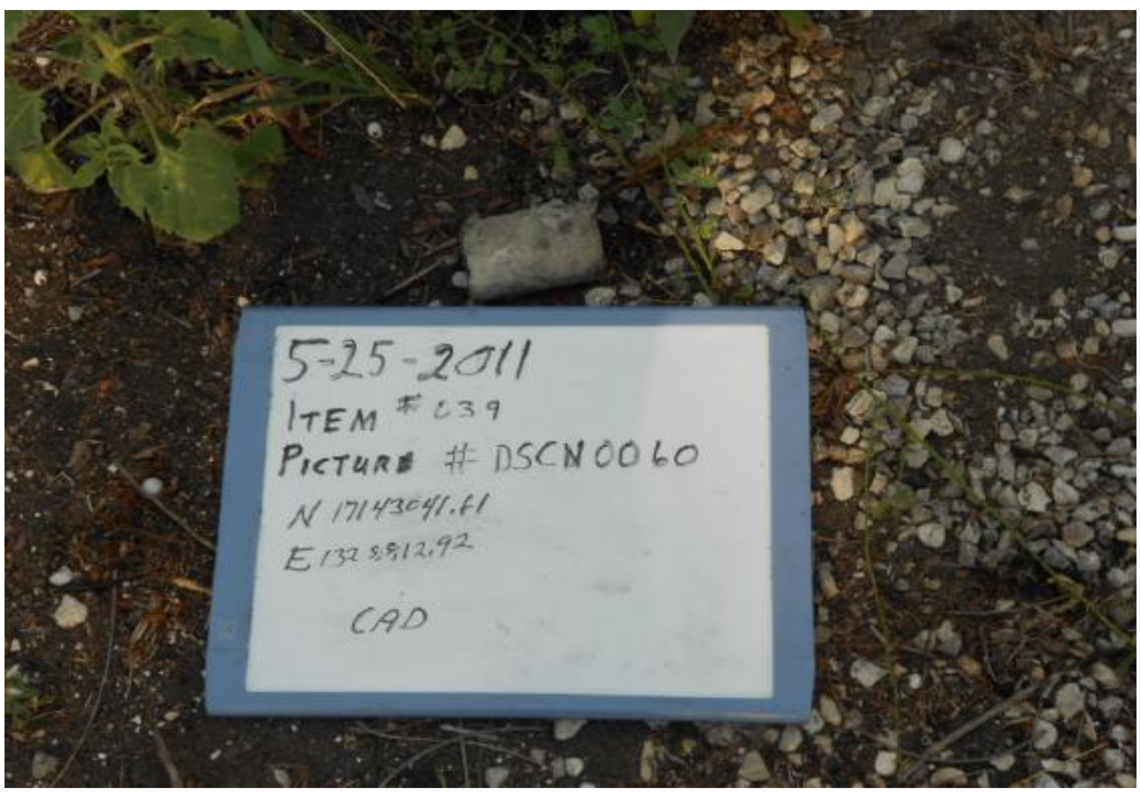
GRID/ITEM No.:
6 / 57

COORDINATES:
N: 17143041.61
E: 1328812.92

DESCRIPTION:

CAD

MDAS



MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 55 (DSCN0061)

GRID/ITEM No.:
6 / 40

COORDINATES:
N: 17143031.63 E:
1328810.36

DESCRIPTION:

(4) 3.5 inch Rockets
(3) CAD
(1) AN-MK23 Practice
(1) 20mm TP

MDAS

(3) 3.5 Inch Rockets

MEC

PHOTO 56 (DSCN0062)

GRID/ITEM No.:
6/41 Near Burn Pit

COORDINATES:
NA

DESCRIPTION:

3.5 inch rockets

Outside of Transect

Left in Place 5/25/11

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 57 (DSCN0063)

GRID/ITEM No.:
6 / 41 Near Burn Pit

COORDINATES:
NA

DESCRIPTION:

3.5 inch rockets

Outside of Transect

Left in Place
5/25/11

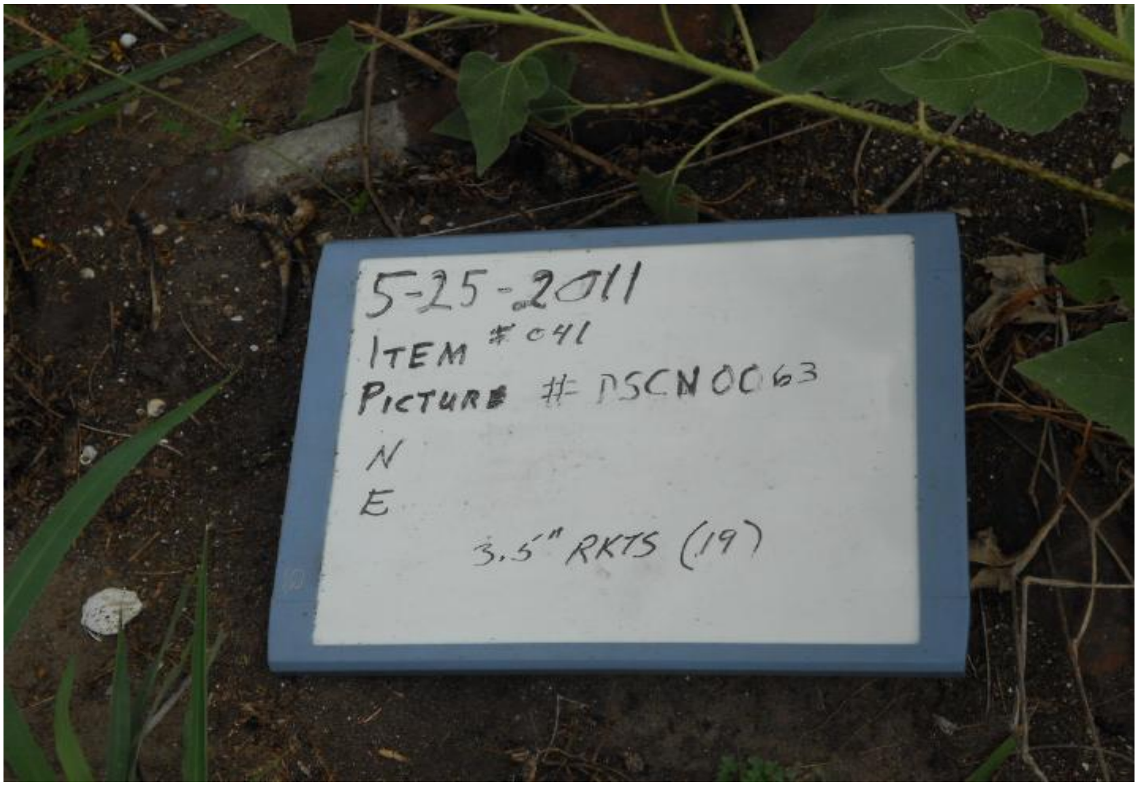


PHOTO 58 (DSCN0064)

GRID/ITEM No.:
6 / 42

COORDINATES:
N: 17142989.65
E: 1328812.72

DESCRIPTION:

Burn Pit

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 59 (DSCN0065)

GRID/ITEM No.:
6 / 43

COORDINATES:
N:17142989.65
E: 1328812.72

DESCRIPTION:

(27) CAD

MDAS

PHOTO 60 (DSCN0066)

GRID/ITEM No.:
6 / 44

COORDINATES:
N: 17142989.65
E: 1328812.72

DESCRIPTION:

(13) 20 mm TP

MDAS

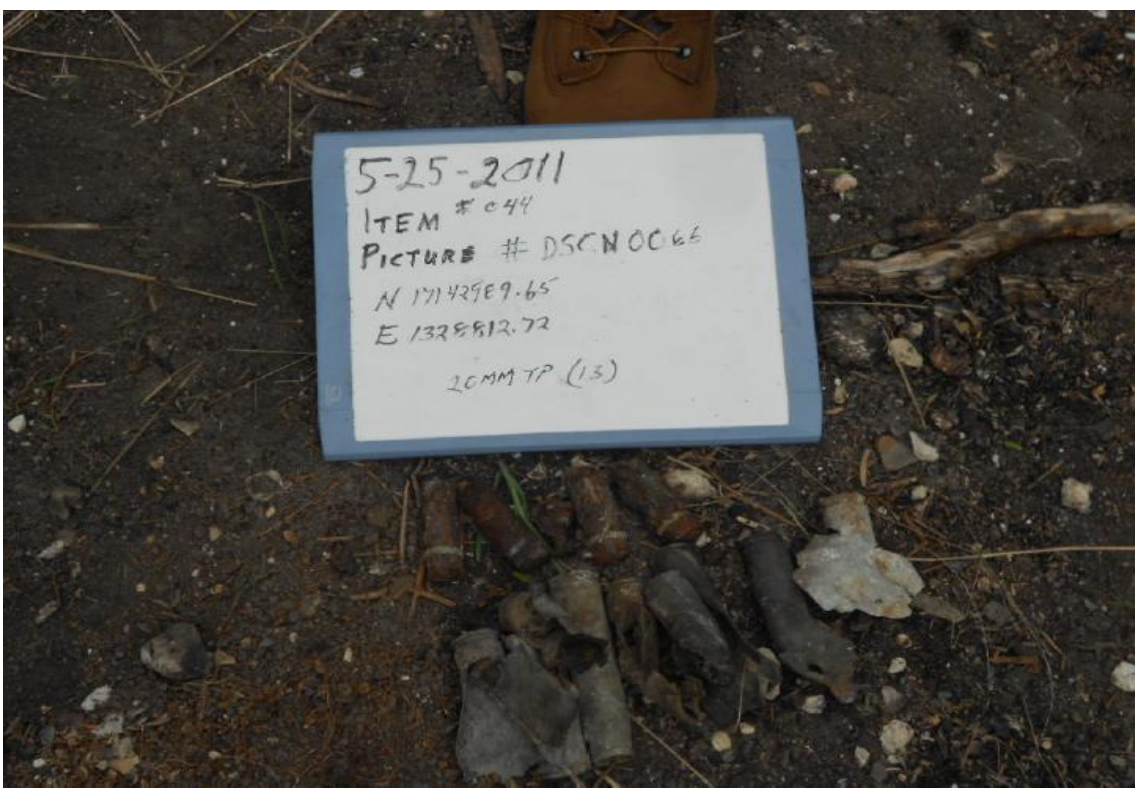


PHOTO 61 (DSCN0067)

GRID/ITEM No.:
6 / 45

COORDINATES:
N:17142989.65
E: 1328812.72

DESCRIPTION:

(4) 40 mm Cartridge Cases

MDAS

PHOTO 62 (DSCN0069)

GRID/ITEM No.:
7 / 47

COORDINATES:
N: 17143018.45
E: 1328860.60

DESCRIPTION:

CAD

MDAS

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 63 (DSCN0070)

GRID/ITEM No.:
7 / 48

COORDINATES:
N:17143017.85
E: 1328856.06

DESCRIPTION:

40 mm Shape

MDAS

PHOTO 64 (DSCN0071)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Brush Removal In Hazardous Area.

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 65 (DSCN0072)

GRID/ITEM No.:
7 / 49

COORDINATES:
N: 17143022.46
E: 1328859.54

DESCRIPTION:

(4) CAD
(2) 40 mm Fuze components
(1) 40 mm Cartridge Case

MDAS

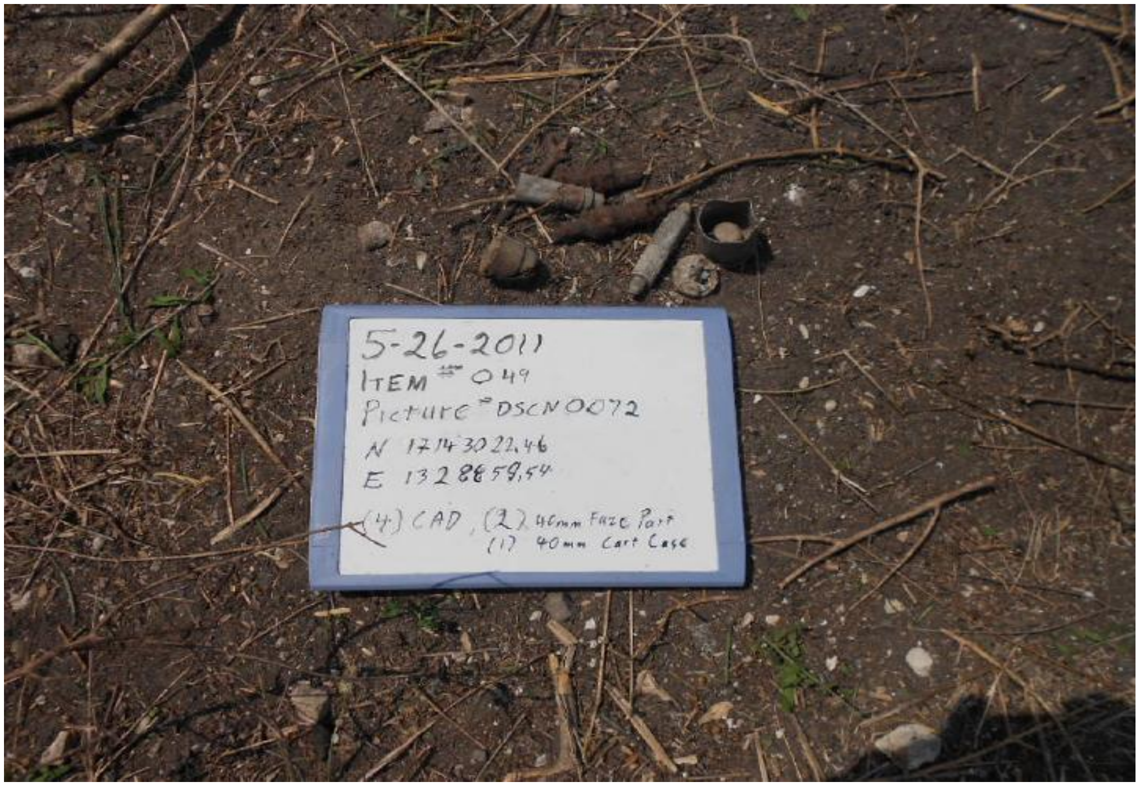


PHOTO 66 (DSCN0073)

GRID/ITEM No.:
7 / 50

COORDINATES:
N: 17143014.64
E: 1328863.13

DESCRIPTION:

(3) 20 mm TP
(1) 40 mm Practice
(4) CAD
(15) Assorted Cartridge Cases

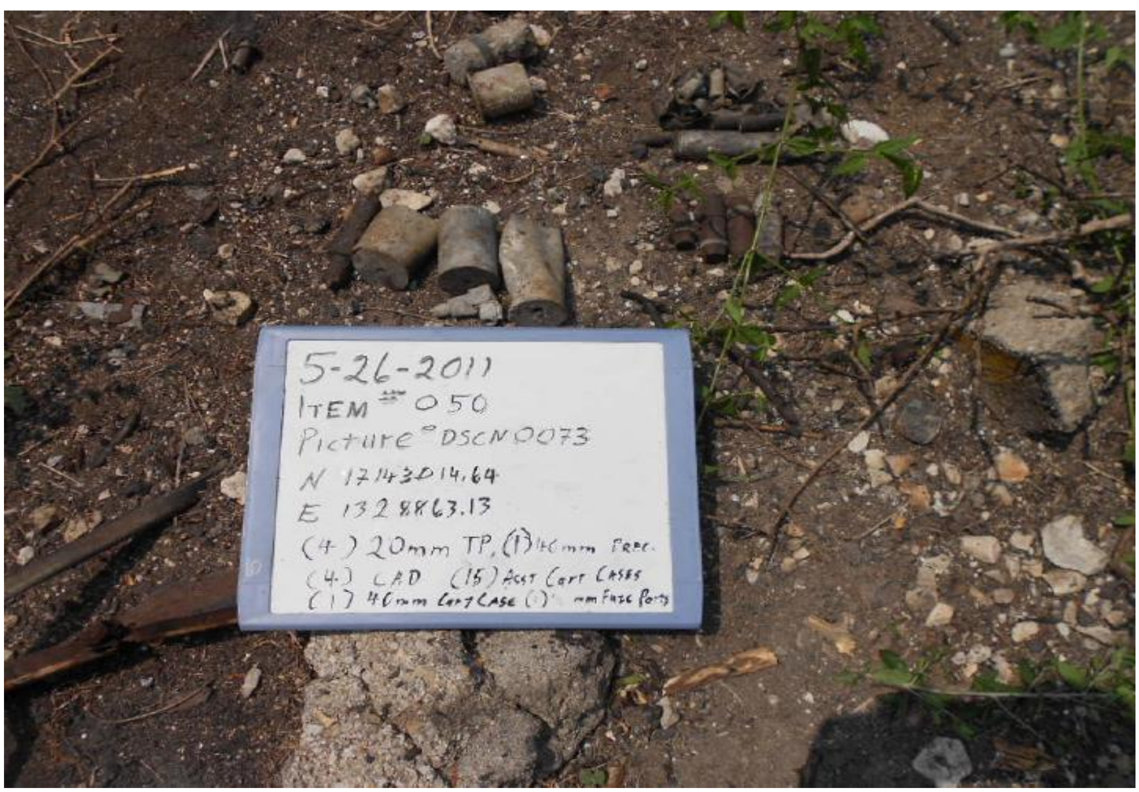


PHOTO 67 (DSCN0074)

GRID/ITEM No.:
7 / 51

COORDINATES:
N:17143008.79
E:1328863.49

DESCRIPTION:

(1) 2.75 Inch Fins
(16) Assorted Cartridge Cases

PHOTO 68 (DSCN0075)

GRID/ITEM No.:
7 / 52

COORDINATES:
N: 17143004.00
E: 1328858.32

DESCRIPTION:

(3) 20 mm TP
(8) 40 mm Assorted Pieces
(4) CAD
(2) Assorted Cartridge Cases

MDAS

PHOTO 69 (001)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

DEMO Ops
Bringing in Sand
bags.

5/27/11

PHOTO 70 (002)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

DEMO Ops
Setting Shot

5/27/11

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 71 (003)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

DEMO Ops
Setting Shot

5/27/11

PHOTO 72 (004)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

DEMO Ops
Setting Shot
5/27/11

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 73 (005)	
GRID/ITEM No.: NA	
COORDINATES: NA	
DESCRIPTION: DEMO Ops Setting Shot 5/27/11	
PHOTO 74 (007)	
GRID/ITEM No.: NA	
COORDINATES: NA	
DESCRIPTION: Explosive Vehicle Parked and Ready	

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 75 (009)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Fire Department
Hosing Down Area

PHOTO 76(010)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Fire Department
Hosing Down Area

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 77(011)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Fire Department Hosing Down Area

PHOTO 78 (012)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Fire Department On-Site

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 79(013)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Fire Department
Hosing Down
Area

PHOTO 80 (014)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Putting down firing
Line

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 81 (015)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Setting Up Shot

5/27/11

PHOTO 82 (DSCN0085)

GRID/ITEM No.:
5 / 58

COORDINATES:
N:17143034.18
E: 1328763.47

DESCRIPTION:

(2) AN-MK 23
Practice Bomb

MEC

PHOTO 83 (DSCN0087)

GRID/ITEM No.:
5 / 59

COORDINATES:
N: 17143029.47
E 1328760.84

DESCRIPTION:

(2) 2.75 inch rocket fins

MDAS

PHOTO 84 (DSCN0088)

GRID/ITEM No.:
5 / 60

COORDINATES:
N:17143022.37
E: 1328759.43

DESCRIPTION:

AN-MK 23 Practice Bomb

MEC

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 85 (DSCN0089)

GRID/ITEM No.:
5 / 61, 62

COORDINATES:
N:17143009.10
E: 1328760.62

DESCRIPTION:

(2) 2.75 inch Rocket Warhead

MEC

PHOTO 86 (DSCN0090)

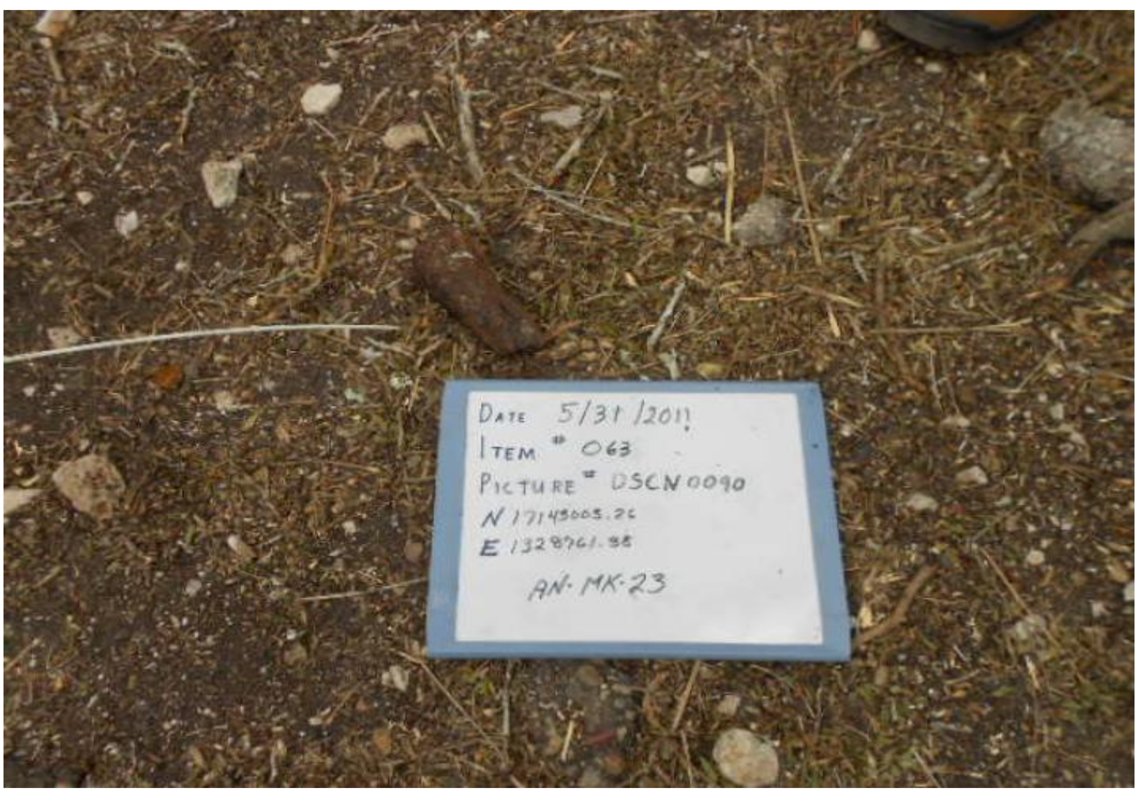
GRID/ITEM No.:
5 / 63

COORDINATES:
N: 17143003.26
E: 1328761.35

DESCRIPTION:

AN-MK 23 Practice Bomb

MEC



MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 87 (DSCN0091)

GRID/ITEM No.:
5 / 64

COORDINATES:
N: 17142996.34
E: 1328763.05

DESCRIPTION:

AN-MK 23
Practice Bomb

MEC

PHOTO 88 (DSCN0092)

GRID/ITEM No.:
5 / 65

COORDINATES:
N: 17142996.34
E: 1328763.05

DESCRIPTION:

2.75 Inch Rocket
Warhead

MEC

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 89(DSCN0093)

GRID/ITEM No.:
5 / 64, 65

COORDINATES:
N: 17142996.34
E: 1328763.05

DESCRIPTION:

2.75 Inch Rocket Warhead

MEC

PHOTO 90 (DSCN0094)

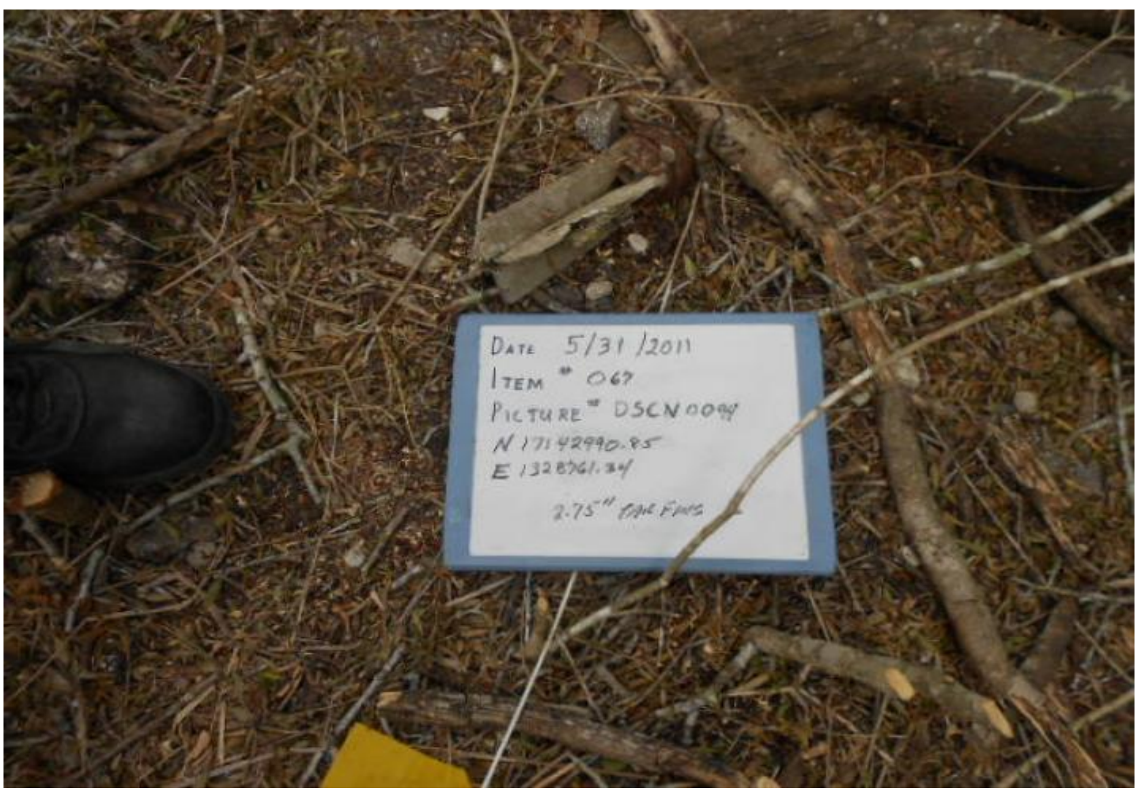
GRID/ITEM No.:
5 / 66

COORDINATES:
N: 17142990.85
E: 1328761.34

DESCRIPTION:

2.75 Inch Rocket Fins

MDAS



MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 91 (DSCN0095)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Geophysics team checking flag placement

PHOTO 92 (DSCN0096)

GRID/ITEM No.:
5 / 68

COORDINATES:
N: 17143034.56
E: 1328760.91

DESCRIPTION:

AN-MK 23 Practice Bomb

MEC

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 93 (DSCN0097)

GRID/ITEM No.:
5 / 69

COORDINATES:
N: 17143034.56
E: 1328760.91

DESCRIPTION:

AN-MK 23 Practice Bomb

MDAS

PHOTO 94 (DSCN0114)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Demo Shot #5

PHOTO 95 (DSCN0099)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Digging up burial pit anomaly 317 & 299

PHOTO 96 (DSCN0100)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Digging up burial pit anomaly 317 & 299

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 97 (DSCN0101)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Digging up burial pit anomaly 317 & 299

PHOTO 98 (016)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Digging up burial pit anomaly 317 & 299

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 99 (017)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Digging up burial pit anomaly 317 & 299

PHOTO 100 (018)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Digging up burial pit anomaly 317 & 299

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 101 (019)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Digging up burial pit anomaly 317 & 299

PHOTO 102 (020)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Digging up burial pit anomaly 317 & 299

PHOTO 103 (021)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Digging up burial pit anomaly 317 & 299

PHOTO 104 (022)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Digging up burial pit anomaly 317 & 299

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 105 (023)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Loading Magazine with AN-MK 23 Practice Bomb

PHOTO 106 (DSCN0102)

GRID/ITEM No.:
5 / 71

COORDINATES:
N:17143022.37
E: 1328759.03

DESCRIPTION:

(5) 2.75 Inch Rocket Warhead

MEC

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 107 (DSCN0103)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Digging up burial pit anomaly 317 & 299

PHOTO 108 (DSCN0104)

GRID/ITEM No.:
5 / 72

COORDINATES:
N: 17143043.65
E: 1328861.26

DESCRIPTION:

(9) 20 mm TP

PHOTO 109 (DSCN0105)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Demo Shot #4

6/10/11

PHOTO 110 (DSCN0106)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Demo Shot #5

6/10/11

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 111 (DSCN0107)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Demo Shot #3

6/10/11

PHOTO 112 (DSCN0108)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Demo Shot #2

6/10/11

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 113 (DSCN0109)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Demo Shot #1

6/10/11

PHOTO 114 (DSCN0110)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Demo Shot #5

6/10/11

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 115 (DSCN0111)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Demo Shot #4

6/10/11

PHOTO 116 (DSCN0112)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Demo Shot #4

6/10/11

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 117 (DSCN0113)	
GRID/ITEM No.: NA	
COORDINATES: NA	
DESCRIPTION: Demo Shot #4 6/10/11	
PHOTO 118 (DSCN0114)	
GRID/ITEM No.: NA	
COORDINATES: NA	
DESCRIPTION: Demo Shot #5 6/10/11	

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 119 (DSCN0115)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Demo Shot #1

6/10/11

PHOTO 120 (DSCN0116)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Demo Shot #2

6/10/11

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 121 (DSCN0118)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Demo Shot #3

6/10/11

PHOTO 122 (DSCN0119)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Demo Shot #3

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 123 (DSCN0120)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Digging of Anomaly 339

PHOTO 124 (DSCN0121)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Anomaly 420

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

<table>
<tr><td>PHOTO 125 (DSCN0122)</td><td rowspan="4"></td></tr>
<tr><td>GRID/ITEM No.:
NA</td></tr>
<tr><td>COORDINATES:
NA</td></tr>
<tr><td>DESCRIPTION:

Anomaly 376</td></tr>
<tr><td>PHOTO 126 (DSCN0123)</td><td rowspan="4">
</td></tr>
<tr><td>GRID/ITEM No.:
5 / 73</td></tr>
<tr><td>COORDINATES:
N: 17143000.57
E:1328762.49</td></tr>
<tr><td>DESCRIPTION:

2.75 Inch Warhead
AN-MK 23 Practice Bomb
(5) 20 mm TP
2.25 Inch Ballistic Nose

MEC</td></tr>
</table>

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 127 (DSCN0124)

GRID/ITEM No.:
5 / 74

COORDINATES:
N: 17143044.70
E: 1328811.87

DESCRIPTION:

AN-MK 23 Practice Bomb

2.25 Inch Rocket components

MDAS

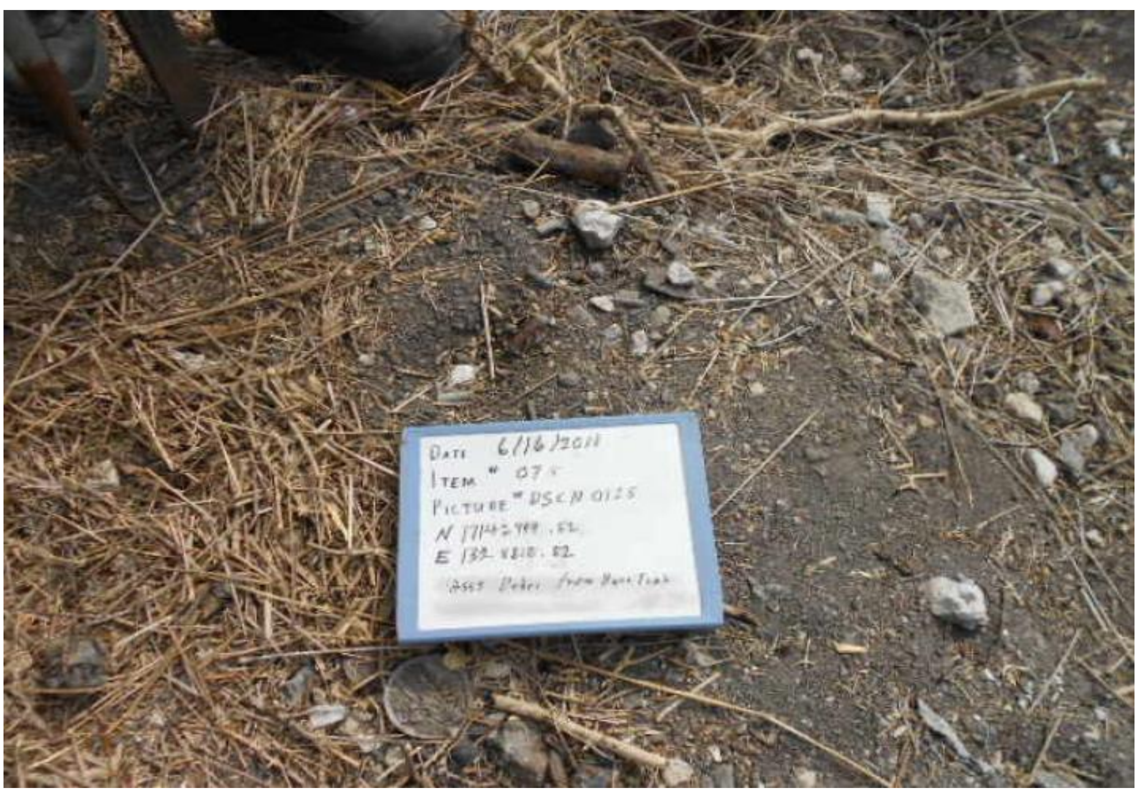
PHOTO 128 (DSCN0125)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Assorted Pieces from Burn Tank



MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 129 (Demo-002)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Setting up Demo
Shot #1

6/17/11

PHOTO 130 (Demo-004)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Setting up Demo
Shot #1

6/17/11

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 131 (Demo-005)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Setting up Demo Shot #1

6/17/11

PHOTO 132 (Demo-006)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

(3) 3.5 Inch hole before shot set up

6/17/11

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 133 (Demo-008)

GRID/ITEM No.:
NA

COORDINATES:
N 17143036.99
E 1328696.68

DESCRIPTION:

Setting Up Demo Shot (Stringing Perforators) Shot #3

6/17/11

PHOTO 134 (Demo-009)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Setting Up Demo Shot (Stringing Perforators) Shot #3

6/17/11

PHOTO 135 (Demo-010)	
GRID/ITEM No.: NA	
COORDINATES: NA	
DESCRIPTION: Setting Up Demo Shot (Stringing Perforators) Shot #3 6/17/11	

PHOTO 136 (Demo-012)	
GRID/ITEM No.: NA	
COORDINATES: NA	
DESCRIPTION: Setting Up Demo Shot Shot #3 6/17/11	

PHOTO 137 (Demo-013)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Setting Up Demo Shot #1 and #3

6/17/11

PHOTO 138 (Demo-014)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Setting Up Demo Shot #1 and #3

6/17/11

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 139 (Demo-016)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Setting Up Demo Shot #2

6/17/11

PHOTO 140 (Demo-017)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Setting Up Demo Shot #2

6/17/11

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 141 (Demo-018)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Setting Up Demo Shot #2

6/17/11

PHOTO 142 (Demo-019)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Setting Up Demo Shot #2

6/17/11

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 143 (Demo-021)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Demo Shot #1

6/17/11

PHOTO 144 (Demo-023)

GRID/ITEM No.:
NA

COORDINATES:
NA

DESCRIPTION:

Demo Shot #1 and Shot #3

6/17/11

MEC RI Report
Incinerator Disposal Site
NALF Cabaniss, Corpus Christi, Texas

PHOTO 145 (Demo-024)	
GRID/ITEM No.: NA	
COORDINATES: NA	
DESCRIPTION: Demo Shot #2 6/17/11	

Appendix B
UXO Detector-Aided Survey Field Forms and ESS

Appendix B-1
MEC Field Activity Log

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	01/10/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: N/A

Site Preparation (including mobilization): Prep for field operations, All field personnel Mobilize

Site Survey: N/A

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: N/A

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: N/A

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: N/A

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

Made initial phone calls to local personnel

Secured a meeting room to conduct training classes prior to starting field work

Met with Mr. Chris Cherniss (NASCC POC)(Environmental Office) advised him of Training Classes and initial in briefing at hotel

Contacted supervisor of brush crew, (subcontractor) notified him of meeting place and times

Contacted surveyor, notified him of time and place of mandatory training

Received initial delivery of tools and equipment (including WORK PLAN and HASP)

Notified all UXO Personnel by phone of meeting place and time

Spoke with Ms. Carolyn Scheible (NASCC Safety Officer) Ref: HERO safe equipment

Quickly reviewed Work Plan and Hasp prior to mandatory Training

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Mostly cloudy skies, High 47F,Winds N @ 20-30mph

VISITORS ON SITE: NONE

PERSONNEL ON SITE: Syd Rodgers

SIGNATURE: **DATE:** 01/10/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	01/11/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: N/A

Site Preparation (including mobilization): Mandatory Initial Site training (Local Hotel)

Site Survey: N/A

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: Set up Base Station to identify known points, Place stakes at North and South ends of Transects

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: N/A

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: N/A

DATE	01/11/2011
SHEET 2 OF 2	

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

Mandatory training for all personnel 08:00-12:00 (Homewood Suites, Corpus Christi TX), Covered Work Plan, Hasp, Verified personnel certifications, Over view of project for UXO and Sub Contractor personnel.

13:00-17:00 Site walk of the project site, boundaries and expectations

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Mostly cloudy skies, High 47F,Winds N @ 20-30mph

VISITORS ON SITE: NONE

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jake Clement, Shawn Woods, Norm Piper, Fred Grosskoff, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermillo Navarro, Vicente Gonlalez, Jonny Aleman, Marces Marcelino, Chris Chesniss, Abraham Nimroozi,

SIGNATURE: **DATE:** 01/11/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	01/12/2011
SHEET 1 OF 3	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: N/A

Site Preparation (including mobilization): N/A

Site Survey: Set up Base Station, continue installing transect stakes at North and South ends of Transects with alternate colored ribbons between stakes. When transects are completed stakes will be placed at ribbon locations until all points on map are properly identified.

Vegetation Management: Started Brush Cutting at designated Transects, Transects P1, P2, and P24 were completely cut today, Transect P3 was cut to approximately 50%.

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: N/A

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: N/A

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

TETRA TECH NUS, INC.

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: N/A

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:00 Personnel arrived at work site, Safety Officer conducted daily Safety briefing to all personnel, Brush crew, and UXO escort personnel proceeded to Transect #1. Final instructions given to brush cutting crew and work commenced.

Workers encountered an area today that contained a wide variety of UXO items. The area is Approximately 380' long and approximately 70'to 100' deep, along Perimeter Road starting at approximately Transect P4 and ending at approximately Transect P8, This area was marked as hazardous and will be avoided during brush cutting activities. All items within this area are considered as MPPEH until they are able to be inspected under an approved ESS. All brush cutting activities were suspended in this area and moved to the opposite end of the project Site and resumed. All notifications were made IAW Para 3 of the ESSDR dtd 07 Jan 11. This area will be GPS'd and plotted on our map.

2 ea Chemical Toilets were delivered to Site today.

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Generally cloudy skies, High 46F,Winds NNE @ 10-20mph

VISITORS ON SITE: A. Andrews, Nancy Mitton, Chris Chesniss, CDR Jeff Kilion, Philip Dixon, Mark Stroop, James Wallace and Keenan Harris

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jake Clement, Shawn Woods, Norm Piper, Fred Grosskoff, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermillo Navarro, Vicente Gonlalez, Jonny Aleman, Marces Marcelino, Chris Chesniss, Abraham Nimroozi,

SIGNATURE: Syd Rodgers **DATE:** 01/12/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	01/13/2011
SHEET 1 OF 3	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: N/A

Site Preparation (including mobilization): N/A

Site Survey: Set up Base Station, continue installing transect stakes at North and South ends of Transects with alternate colored ribbons between stakes. Transect #23 was finished today. Transects 19, 20, 21, 22 were surveyed in by close of business today.

Vegetation Management: Continued cutting Transects, Transect Q23 was completely cut today, and 50% of Transect Q22 was cut and will be completed on 01/14/11. Chipping of cut brush was started today.

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: N/A

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: N/A

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

TETRA TECH NUS, INC.

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: No additional MEC or MPPEH were encountered today

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

Continued to survey in Transect lanes

Continued cutting established Transects

Brush cutting, Sub-Contractor started chipping the cut brush today, per request of (Environmental Dept) NASCC the chips will be deposited in the fire breaks and will be spread at a later date by the SEABEES stationed at NASCC.

2ea additional Schonstedts arrived today, giving us a total of 6 GA 52Cx, 1ea Dell Note book, 1ea Leica GPS System 1200, and brush cutting equipment supplied by the Subcontractor

We have been provided with 3ea barrels for MDAS when we are authorized to certify

Action photos are being taken on a regular basis, and a photo log will be established.

The transects are numbered and lettered, The number goes North/South and the letters go East/West

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Cloudy Skies with a few showers in PM. High 49F. Winds NE@10-15mph. Rain 30%

VISITORS ON SITE: Chris Cherniss, and Gary Leflore are from the Environmental Protection Office, NAS-Corpus Christi

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jake Clement, Shawn Woods, Norm Piper, Fred Grosskoff, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermillo Navarro, Vicente Gonlalez, Jonny Aleman, Marces Marcelino, Chris Chesniss, Abraham Nimroozi,

SIGNATURE: Syd Rodgers **DATE:** 01/13/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	01/14/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX

SITE(s): MRP Incinerator Disposal Site

PROJECT NO: 112G01821

TASK CODES: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: N/A

Site Preparation (including mobilization): N/A

Site Survey: Set up Base Station, continue installing transect stakes at North and South ends of Transects with alternate colored ribbons between stakes. Transects surveyed in today were #16, #17, #18 and approximately 40% of #15.

Vegetation Management: Continued cutting Transects, Transects cut today were #21, #22 and approximately 90% of #20.

Detector Aided Surface Survey - Transect: Sweeping to provide UXO Avoidance during cutting operations.

GPS Positional Data: N/A

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: N/A

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: No MEC or MPPEH was encountered today

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

07:00 All personnel arrived on time.

After daily Safety Meeting personnel assembled tools and equipment and started the day's activities.

The brush sub contractor divided into two crews this morning to see if using two crews, (each on a separate Transect line) would speed up the cutting process. Each crew was provided with a dedicated UXO escort. All members of the brush cutting crews were briefed daily on what to do if they see an item laying on the surface and are not sure of what it is. The crew is to stop work and have their assigned UXO tech inspect the item to determine if the item is a hazard or not. If the item is a hazard the item will be flagged for UXO Avoidance and dealt with at a later date, the brush crew will press on being careful to avoid the flagged item. The UXO Technician is to provide UXO Avoidance sweeps in the area in front of the brush crew to identify any item prior to the brush crew's arrival.

15:00 Part of the brush crew was reassigned from cutting duties to pulling and chipping brush that had been left along the side of the road. This has been done on a daily basis (as a clean as they go) in an effort to try and keep ahead of the cut brush instead of cutting it all at the end of their phase.

Warmed up some today making it a little more pleasant working condition. Some light drizzle late in the afternoon.

17:00 all personnel depart the work site.

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Cloudy with few showers in PM. High 58F. Winds ENE @ 5-10 mph. Rain 30%

VISITORS ON SITE: N/A

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jake Clement, Shawn Woods, Norm Piper, Fred Grosskoff, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermillo Navarro, Vicente Gonlalez, Jonny Aleman, Marces Marcelino, Chris Chesniss, Abraham Nimroozi,

SIGNATURE: Syd Rodgers **DATE:** 01/14/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	01/15/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: N/A

Site Preparation (including mobilization): N/A

Site Survey: N/A

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: N/A

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: N/A

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: N/A

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

No brush cutting, surveying, or UXO activities were conducted today due to weather. It rained here almost all night.

All personnel arrived at the site at the appointed time. I spoke with the supervisor of the brush cutting element; he had safety concerns for his people in the slippery terrain with chain saws and brush cutting equipment.

I also spoke with the person in charge of the survey effort and he informed me that his equipment would not function properly and could be damaged during heavy rainfall.

I called a meeting with my Safety Officer for his thoughts on the weather conditions and he echoed the thoughts of the other supervisors that it would be better to see if the rain tapered off during the day and dried out some and then make another attempt on Sunday 1/16/11.

I informed all personnel to take a two hour show up time and go home and be back on Sunday to resume operations.

To further complicate matters this morning we could not gain access to the locked security gate. The Fire Department, when they left for the weekend did not secure the gate in the proper manner so we could use our lock for entry. That issue was corrected today at 13:00 hrs when I met our NAS, POC at the gate to switch the locks around so we can gain access on Sunday Morning when we resume operations.

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Periods of Rain. High 63F. Winds E@ 10-20mph. Rain 70%. Rainfall around a half an inch.

VISITORS ON SITE: N/A

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jake Clement, Shawn Woods, Norm Piper, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermillo Navarro, Vicente Gonlalez, Jonny Aleman, Marces Marcelino, Chris Chesniss, Abraham Nimroozi,

SIGNATURE: Syd Rodgers **DATE:** 01/15/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	01/17/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Leica GPS System 1200, Dell Notebook, Trimble Geo XH, and Schonstedt GA 52Cx, Brush cutting equipment.

Site Preparation (including mobilization): N/A

Site Survey: Set up Base Station, continue installing transect stakes at North and South ends of Transects with alternate colored ribbons between stakes. Transect lanes surveyed in today are #12, #13, #14, and #15. The (Munitions area of concern), Boundaries was increased in size today due to finding additional munitions outside the initially marked area, this data will be sent to Tetra Tech NUS to be overlaid onto a map.

Vegetation Management: Continued cutting Transects, Transects 19 and 20 were completely cut today and approximately 50% of Transect #18 was completed.

Detector Aided Surface Survey - Transect: Sweeping to provide UXO Avoidance during cutting operations.

GPS Positional Data: N/A

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: N/A

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

TETRA TECH NUS, INC.

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: No MEC or MPPEH was encountered today

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

The promise of abundant sunshine today was false.

All personnel reported at the appointed time, The Safety Officer conducted his daily safety briefing and all went to work. For results of today's activities (see Summary of Daily Progress).

All brush that was cut and hauled to the road was chipped by COB.

The brush crew is getting better, there is less going back to straighten out Transect lanes.

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Abundant sunshine. High 68F. Winds ESE@5-10mph.

VISITORS ON SITE: N/A

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jake Clement, Shawn Woods, Norm Piper, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermillo Navarro, Vicente Gonlalez, Jonny Aleman, Marces Marcelino, Chris Chesniss, Abraham Nimroozi,

SIGNATURE: Syd Rodgers **DATE:** 01/17/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	01/18/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Leica GPS System 1200, Dell Notebook, Trimble Geo XH, and Schonstedt GA 52Cx, Brush cutting equipment.

Site Preparation (including mobilization): N/A

Site Survey: Set up Base Station, continue installing transect stakes at North and South ends of Transects with alternate colored ribbons between stakes. Transects surveyed in today were #11, #10, #9, #8, and approximately 15% of Transect #7.

Vegetation Management: Continued cutting Transects, Transects lanes cut today were #18 and approximately 70% of #17.

Detector Aided Surface Survey - Transect: Sweeping to provide UXO Avoidance during cutting operations.

GPS Positional Data: N/A

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: N/A

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: No MEC or MPPEH was encountered today

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

All personnel arrived on site at the appointed time

After the Safety Officer gave the daily Safety briefing all personnel went to their designated work stations with a UXO escort.

Speaking with the surveyor at COB today he informed me only one more North/South Transect remains, with this complete the survey team will start putting in the intermediate stakes to complete the grids.

As a routine, at 15:30 hrs daily part of the brush crew breaks off to chip the brush that had been hauled to the road during the day.

Was informed today that a sampling crew will be arriving next week to take soil samples and establish some groundwater wells at the Skeet and Pistol Range, an additional UXO Tech will MOB on Monday to act as their escort. Other than the daily safety briefing this will be a separate operation and covered under a separate SAP and ESS Determination.

Mr. Chris Cherniss, (Navy Environmental Office NAS Corpus Christi) and an assistant came to the site today, they brought more pallets for the MDAS Drums and the equipment to establish a known point for our GPS systems.

17:00 Secured all operations and departed for the day

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Partly cloudy. High 73F. Winds NW@10-20mph

VISITORS ON SITE: Chris Cherniss and Danielle Mcdurmitt (Navy Environmental Office NAS Corpus Christi)

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jake Clement, Shawn Woods, Norm Piper,, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermillo Navarro, Vicente Gonlalez, Jonny Aleman, Marces Marcelino, Chris Chesniss, Abraham Nimroozi,

SIGNATURE: Syd Rodgers **DATE:** 01/18/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	01/19/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX

SITE(s): MRP Incinerator Disposal Site

PROJECT NO: 112G01821

TASK CODES: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: 1ea Leica GPS System 1200, 1ea Dell Notebook, 1ea Trimble Geo XH, and 6ea Schonstedt GA 52cx, Brush cutting equipment.

Site Preparation (including mobilization): N/A

Site Survey: Set up Base Station, continue installing transect stakes at North and South ends of Transects with alternate colored ribbons between stakes.

Vegetation Management: Continued cutting Transects.

Detector Aided Surface Survey - Transect: Sweeping to provide UXO Avoidance during cutting operations.

GPS Positional Data: N/A

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: N/A

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

TETRA TECH NUS, INC.

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: No MEC or MPPEH was encountered today

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

All personnel arrived at the Site at the appointed time, the Safety Officer presented his daily Safety Briefing, and the CAVCO Supervisor also gave his thoughts about job safety.

Job assignments were passed out and the crew with their UXO escort went to work.

Transects cut today were: #17, completed, and approximately 95% of #16. Slow going, the brush in the next few lanes is extremely thick and difficult to get through.

Transects Surveyed today were: Transect #7 was completed, with Transect #7 completed all North/South transect lanes are complete. The survey team then moved into the next phase of putting in the intermediate stakes on each lane, which when finished will divide the entire site into 50' squares. Transect lanes that had intermediate stakes surveyed in today were Transect #20, #21, #22, #23, and #24. These lanes are ready for the UXO surface sweep when the ESS is approved.

17:00 Secured operations and all personnel departed the Site.

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Mostly sunny to start. Few afternoon clouds. High 67F. Winds ESE@10-20mph

VISITORS ON SITE: N/A

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jake Clement, Shawn Woods, Norm Piper,, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermillo Navarro, Vicente Gonlalez, Jonny Aleman, Marces Marcelino, Chris Chesniss, Abraham Nimroozi,

SIGNATURE: Syd Rodgers **DATE:** 01/19/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	01/20/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: 1ea Leica GPS System 1200, 1ea Dell Notebook, 1ea Trimble Geo XH, and 6ea Schonstedt GA 52Cx, Brush cutting equipment.

Site Preparation (including mobilization): N/A

Site Survey: Set up Base Station, resumed the operation of installing stakes in each Transect at 50' intervals, which when completed will divide the entire Site into 50' squares.

Vegetation Management: Continued cutting Transects.

Detector Aided Surface Survey - Transect: Sweeping to provide UXO avoidance during cutting operations.

GPS Positional Data: N/A

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: N/A

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: No MEC or MPPEH was encountered today

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

All personnel arrived at the appointed time, the Safety Officer presented his daily safety briefing, job assignments were made and brush crew personnel departed with their UXO escort to their work stations.

The survey team set up their equipment and resumed placing stakes in the center of each Transect Lane at 50' intervals.

At approximately 14:30 hrs I was notified by one of the UXO escorts, in Transect #15 the brush crew located a very large active bee hive very close to their work area, convinced the equipment being used would aggravate the insects, I instructed the work force in Transect #15 to relocate to another transect until the bee hive could be dealt with.

I called Mr. Chris Cherniss, (Navy Environmental Office NAS Corpus Christi), he informed me he would notify the proper personnel and have the hazard either removed or destroyed. Still waiting NASCC response.

Transect surveyed and staked today were: Transects #16, #17, #18, and #19.

Transects brush cut today were: Transects #16 and #3 were completed, Transects #4, #5, #6, #7, and #8 were completed approximately 10%.

Per a prearranged schedule our two chemical toilets were cleaned today.

All brush pulled to the road was chipped prior to COB.

A new person will start with the brush crew on Tuesday; all required paperwork was handed over to the Safety Officer and checked. This individual was given the work plan and HASP to read and sign so he will be ready to go to work early Tuesday morning.

All personnel will be on authorized break 21, 22, 23, 24 will return to work on 25 January 2011.

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Mostly sunny to start. Few afternoon clouds. High 55F. Winds ESE@10-20mph

VISITORS ON SITE: N/A

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jake Clement, Shawn Woods, Norm Piper,, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermillo Navarro, Vicente Gonlalez, Jonny Aleman, Marces Marcelino, Chris Chesniss, Abraham Nimroozi,

SIGNATURE: Syd Rodgers **DATE:** 01/20/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	01/25/2011
SHEET 1 OF 3	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: 1ea Leica GPS System 1200, 1ea Dell Notebook, 1ea Trimble Geo XH, and 6ea Schonstedt GA 52cx, Brush cutting equipment.

Site Preparation (including mobilization): One additional UXO Tech III, and two soil samplers Mobbed 01/24/11. Personnel will be taking soil samples at the former Skeet Range.

Site Survey: Set up Base Station, Resumed the operation of installing stakes in each Transect at 50' intervals, which when completed will divide the entire Site into 50' squares. Started surveying Sampling Grids.

Vegetation Management: Continued cutting Transects.

Detector Aided Surface Survey - Transect: Sweeping to provide UXO avoidance during cutting operations.

GPS Positional Data: N/A

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: N/A

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: No MEC or MPPEH was encountered today

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

All personnel arrived at the work site at the appointed time, the Safety Briefing was conducted, assignments were issued, and personnel with their UXO escort departed for their work stations.

Contacted NASCC Environmental Office to see if a decision had been made about the bee hive in Transect #15. A work order has been submitted and waiting for response.

Completed installing 50' grid stakes in Transects, #3, #4, and #5.

Completed installing 50' grid stakes in 20% of Transects, #6, #7, and #8 (North side of perimeter road)

Surveyed Sampling grids, #7, #8, #13, #14, #21, #22, #28, #29, #30, #35, and #36.

Transects completely cut today: Transect #4, #5

Transect #6 was cut approximately 50%

Transect #7 was cut approximately 10%

Soil sampling team requested one of our brush cutting crews (for about 2 hours) to help them access the Former Skeet Range to take their soil samples.

After conferring with the Safety Officer we feel the brush crew can safely cut Transects through the munitions area in Transects #8, #9, and #10. These Transects have a lower concentration of UXO. UXO Items observed can be flagged and avoided.

Transects #5, #6, and #7 which has a high concentration of UXO, should be cut by UXO personnel at a later date.

TETRA TECH NUS, INC.

IMPORTANT PHONE CALLS/DECISIONS: N/A
FIELD TASK MODIFICATIONS: N/A
WEATHER CONDITIONS: Sunny. High 62F. Winds NNW@10-20mph
VISITORS ON SITE: N/A
PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jake Clement, Shawn Woods, Norm Piper,, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermillo Navarro, Marces Marcelino, Abraham Nimroozi, Scott Roberts, Fred Grosskoff, Larry Basilio
SIGNATURE: Syd Rodgers **DATE:** 01/25/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	01/26/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: 1ea Leica GPS System 1200, 1ea Dell Notebook, 1ea Trimble Geo XH, and 6ea Schonstedt GA 52Cx, Brush cutting equipment.

Site Preparation (including mobilization): UXO escort for soil sampling team was reassigned to the Incinerator Disposal Site effort. After reading and signing the required documents he was given a brush cutting crew to start working on a new Transect.

Site Survey: Set up Base Station, continued the operation of installing stakes in each Transect at 50' intervals, which when completed will divide the entire Site into 50' squares. Survey team walked the site with the sampling team to ensure surveyed sample grid locations were staked and cleared to their specifications.

Vegetation Management: Continued cutting Transects.

Detector Aided Surface Survey - Transect: Sweeping to provide UXO avoidance during cutting operations.

GPS Positional Data: N/A

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: N/A

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

TETRA TECH NUS, INC.

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: No MEC or MPPEH was encountered today

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

All personnel arrived at the work site at the appointed time, the Safety Briefing was conducted, assignments were issued, and personnel with their UXO escort departed for their work stations.

In the early AM a brush crew was requested and then dispatched to aid the soil sampling team gain access to one of their grids, they were gone for a period of about two hours. Another mega bee hive was encountered and called into our NASCC POC for action to be taken.

Survey team placed 50' stakes in Transects, #0, #1, #2, #6, and approximately 30% of Transect #7.

Brush cutting crews completed Transects #6, and #7 today.

The Brush cutting crews also completed approximately 60% of Transect #8, and approximately 50% of Transect #9.

The soil sampling effort at the Former Skeet Range was completed today and the UXO escort was reassigned to the MRP Incinerator Disposal Site effort.

The Soil sampling team will demobilize on 01/27/11.

At approximately 12:30 hours the brush cutting crews were broken down into 3ea, two man cutting teams with a UXO escort for each team.

17:00 Secured all operations and departed for the day.

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Sunny. High 62F. Winds E@ 5-10mph

VISITORS ON SITE: N/A

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jake Clement, Shawn Woods, Norm Piper,, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermillo Navarro, Marces Marcelino, Abraham Nimroozi, Scott Roberts, Fred Grosskoff, Larry Basilio

SIGNATURE: Syd Rodgers **DATE:** 01/26/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	01/27/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: 1ea Leica GPS System 1200, 1ea Dell Notebook, 1ea Trimble Geo XH, and 6ea Schonstedt GA 52Cx, Brush cutting equipment.

Site Preparation (including mobilization): N/A

Site Survey: Set up Base Station, continued the operation of installing stakes in each Transect at 50' intervals, which when completed will divide the entire Site into 50' squares. Resumed surveying sampling grids. Assisted sampling crew with Trimble issues.

Vegetation Management: Continued cutting Transects.

Detector Aided Surface Survey - Transect: Sweeping to provide UXO avoidance during cutting operations.

GPS Positional Data: N/A

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: N/A

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: Sampling team demobilized today

Site Specific Final Report Preparation And Approval: N/A

TETRA TECH NUS, INC.

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: No MEC or MPPEH was encountered today

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

All personnel arrived at the work site at the appointed time, the Safety Briefing was conducted, assignments were issued, and personnel with their UXO escort departed for their work stations.

Survey team staked sample grids: #1, #2, #3, #9, #15, #16, #17, #24, #31, and #32.

Survey team also surveyed 50' stakes in Transects #7, and #8.

Brush cutting crews finished cutting Transects #8, and #9, then completed approximately 25% of Transect #10 and approximately 5% of Transect of #11.

Chemical toilets were cleaned today.

All brush that was cut and pulled to the road was chipped by COB.

17:00 Secured all operations and departed for the day.

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Considerable clouds in AM, with some decrease in PM. High 66. Winds light and variable.

VISITORS ON SITE: N/A

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jake Clement, Shawn Woods, Norm Piper, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermillo Navarro, Marces Marcelino, Abraham Nimroozi, Scott Roberts, Fred Grosskoff, Larry Basilio

SIGNATURE: Syd Rodgers **DATE:** 01/27/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	01/28/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: 1ea Leica GPS System 1200, 1ea Dell Notebook, 1ea Trimble Geo XH, and 6ea Schonstedt GA 52Cx, Brush cutting equipment.

Site Preparation (including mobilization): N/A

Site Survey: Set up Base Station, continued the operation of installing stakes in each Transect at 50' intervals, which when completed will divide the entire Site into 50' squares.

Vegetation Management: Continued cutting Transects.

Detector Aided Surface Survey - Transect: Sweeping to provide UXO avoidance during cutting operations.

GPS Positional Data: N/A

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: N/A

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: More MPPEH was identified today in the Munitions area.

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

All personnel arrived at the work site at the appointed time, the Safety Briefing was conducted, assignments were issued, and personnel with their UXO escort departed for their work stations.

Brush cutting crews Completed Transect #10, and were able to complete approximately 80% of Transect #11.

Survey Team put stakes at 50' intervals in Transect #9, and is caught up with the brush cutting crews. As the cutting crews finish a Transect they notify the survey team they are complete and the survey team starts their 50' stake installations.

There is a difference in accuracy between the Lica and the hand held Trimble's. At the request of Mr. Mark Maguire the team spent time gathering data information from known points on and off Base to assist Mr. Maguire in correcting the accuracy of the Trimbles.

The survey team also constructed three road barriers today, which will be placed at the outer edges of the work area. The barriers will be placed at the proper locations starting at work 01/29/11.

The bee situation still has not been taken care of, so we may have to adjust our data collection technique when GEO arrives on Site.

The additional MPPEH items located on Transect #9 today were flagged for avoidance and the brush crew pressed on.

17:00 Secured all operations and departed for the day.

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Sunshine and clouds mixed. High 71F. Winds SSW@5-10mph

VISITORS ON SITE: N/A

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jake Clement, Shawn Woods, Norm Piper,, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermillo Navarro, Marces Marcelino, Abraham Nimroozi, Scott Roberts,

SIGNATURE: Syd Rodgers **DATE:** 01/28/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	01/29/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: 1ea Leica GPS System 1200, 1ea Dell Notebook, 1ea Trimble Geo XH, and 6ea Schonstedt GA 52Cx, Brush cutting equipment.

Site Preparation (including mobilization): N/A

Site Survey: Set up Base Station, continued the operation of installing stakes in each Transect at 50' intervals, which when completed will divide the entire Site into 50' squares.

Vegetation Management: Continued cutting Transects.

Detector Aided Surface Survey - Transect: Sweeping to provide UXO avoidance during cutting operations.

GPS Positional Data: N/A

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: N/A

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: More MPPEH was identified today in the Munitions area.

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

All personnel arrived at the work site at the appointed time, the Safety Briefing was conducted, assignments were issued, and personnel with their UXO escort departed for their work stations.

Brush cutters completed Transect #11

Brush cutters completed approximately 20% of Transect #12.

Brush cutters completed approximately 10% of Transect #13.

We are coming close to the end of the brush cutting effort.

Survey team started and completed placing 50' stakes in Transect #10.

Survey team located and surveyed 2ea monitoring wells.

Survey team continued working on road barriers.

17:00 Secured all operations and departed for the day.

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Generally cloudy with a stray PM thunderstorm. High 73F. Winds SSE @ 10-20mph

VISITORS ON SITE: N/A

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jake Clement, Shawn Woods, Norm Piper, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermillo Navarro, Marces Marcelino, Abraham Nimroozi, Scott Roberts,

SIGNATURE: Syd Rodgers **DATE:** 01/29/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	01/30/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: 1ea Leica GPS System 1200, 1ea Dell Notebook, 1ea Trimble Geo XH, and 6ea Schonstedt GA 52Cx, Brush cutting equipment.

Site Preparation (including mobilization): N/A

Site Survey: Set up Base Station, continued the operation of installing stakes in each Transect at 50' intervals, which when completed will divide the entire Site into 50' squares.

Vegetation Management: Continued cutting Transects.

Detector Aided Surface Survey - Transect: Sweeping to provide UXO avoidance during cutting operations.

GPS Positional Data: N/A

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: N/A

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

TETRA TECH NUS, INC.

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: N/A

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

All personnel arrived at the work site at the appointed time, the Safety Briefing was conducted, assignments were issued, and personnel with their UXO escort departed for their work stations.

Brush crews completed approximately 90% of Transect #13, and 90% of Transect #12.

Brush crews had some touch up on Transect #11 and will be completed by COB 01/31/11.

Survey team completed installing 50' stakes in Transect #11

Survey team also surveyed and staked remaining points in the munitions area, Transects #5, #6, and Transect #7.

The survey team was also able to survey and stake Sample grids #4, #10, #18, and grid #23.

The road barriers were completed; photos were taken and sent to the Tetra Tech UXO Manager.

17:00 Secured all operations and departed for the day.

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Cloudy skies early, then partly cloudy this afternoon. Stray Thunderstorm possible. High 77F. Winds South @ 5-10mph.

VISITORS ON SITE: N/A

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jake Clement, Shawn Woods, Norm Piper, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermillo Navarro, Marces Marcelino, Abraham Nimroozi, Scott Roberts, Johnny Alerman

SIGNATURE: Syd Rodgers **DATE:** 01/30/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	01/31/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: 1ea Leica GPS System 1200, 1ea Dell Notebook, 1ea Trimble Geo XH, and 6ea Schonstedt GA 52Cx, Brush cutting equipment.

Site Preparation (including mobilization): N/A

Site Survey: Set up Base Station, continued the operation of installing stakes in each Transect at 50' intervals, which when completed will divide the entire Site into 50' squares.

Vegetation Management: Continued cutting Transects.

Detector Aided Surface Survey - Transect: Sweeping to provide UXO avoidance during cutting operations.

GPS Positional Data: N/A

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: N/A

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

TETRA TECH NUS, INC.

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: N/A

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

All personnel arrived at the work site at the appointed time, the Safety Briefing was conducted, assignments were issued, and personnel with their UXO escort departed for their work stations.

Brush crews completed Transects #12, #13, and #14.

Brush crews accomplished some touch up work on Transect #11, other Transects will have some touch up work done 02/01/11, but at this time all Transects have been cut.

Survey team installed 50' stakes in Transects #12 and #13.

Survey team also surveyed and staked sample grids #26 and #34.

Tomorrow will primarily consist of chipping all brush that has been hauled to the road, SUXOS and brush Supervisor will walk Transects to identify areas to be touched up. These areas will be cut. Brush crew will assemble their tools and equipment and Demobilize at the end of the day.

17:00 Secured all operations and departed for the day.

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Patchy for early AM. Cloudy skies early followed by partial clearing. High 75F. Winds SE@10-20mph

VISITORS ON SITE: N/A

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jake Clement, Shawn Woods, Norm Piper, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermillo Navarro, Marces Marcelino, Abraham Nimroozi, Scott Roberts, Johnny Alerman, Paul Supak

SIGNATURE: Syd Rodgers **DATE:** 01/31/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	02/01/2011
SHEET 1 OF 3	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: 1ea Leica GPS System 1200, 1ea Dell Notebook, 1ea Trimble Geo XH, and 6ea Schonstedt GA 52Cx, Brush cutting equipment.

Site Preparation (including mobilization): N/A

Site Survey: Set up Base Station, continued the operation of installing stakes in each Transect at 50' intervals, which when completed will divide the entire Site into 50' squares.

Vegetation Management: Brush cutting and chipping

Detector Aided Surface Survey - Transect: Sweeping to provide UXO avoidance during cutting operations.

GPS Positional Data: N/A

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: N/A

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

TETRA TECH NUS, INC.

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: N/A

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

All personnel arrived at the work site at the appointed time, the Safety Briefing was conducted, assignments were issued, and personnel with their UXO escort departed for their work stations.

Survey team surveyed in the 50' stakes in Transect #14; this is the last Transect to be surveyed.

Survey team finished surveying in Transect #15 up to within approximately 20 feet of the bee's nest; this is as close as we safely dared go to the active nest. Stake #K15 was not surveyed in for health and safety reasons.

Survey team surveyed and staked sampling grids #5, #11, and #19.

Survey team surveyed in monitoring well #2.

Survey team surveyed and logged primary and alternate IVS locations. When ESS is approved and we are authorized to go intrusive we will bury test items, per the Work Plan.

Survey team packed up equipment and prepared to ship off site.

Brush crew returned to Transect #15 and cut to within 20 ft of the bee's nest. If the nest is not addressed by the time we start our surface sweep and our reacquire phase, I plan to start at perimeter road and sweep South to the uncut area and stop, then start from Oso creek and sweep North to the uncut area and stop. This will leave approximately 10 ft of Transect #15 unswept.

The SUXOS and Brush cutting Supervisor did an inspection of all Transects to identify which Transects needed touch up work.

Transects #23, #22, #21, #18, #14, #8, #5, #3, and #1 required additional brush work. The work was accomplished and the brush crew went into the chipping mode of all the brush that had been hauled to the road. With all work completed the brush crew was finished and departed the Site.

17:00 Secured all operations and departed for the day.

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

TETRA TECH NUS, INC.

WEATHER CONDITIONS: Mix of clouds and sun with gusty winds. High 65F. Winds NNW @ 25-35mph gusting to 40 mph.
VISITORS ON SITE: Chris Cherniss and Gary Leflore, came to Site to discuss the location of the IVS.
PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jake Clement, Shawn Woods, Norm Piper, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermillo Navarro, Marces Marcelino, Abraham Nimroozi, Scott Roberts, Johnny Alerman, Paul Supak
SIGNATURE: Syd Rodgers **DATE:** 02/01/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	02/02/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: 1ea Dell Notebook, 1ea Trimble Geo XH, and 6ea Schonstedt GA 52Cx,

Site Preparation (including mobilization): N/A

Site Survey: N/A

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: A visual surface sweep was conducted on all 25 Transect lines to remove non-munitions-related metal scrap.

GPS Positional Data: N/A

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: N/A

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: N/A

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

All personnel arrived at the work site at the appointed time, the Safety Briefing was conducted, assignments were issued, and personnel departed for their work stations.

A detailed visual surface sweep was conducted by all UXO Techs; the object of this sweep was to remove as much non-munitions metal scrap as possible that might interfere with a GEO survey to be conducted at a later date. All non-munitions scrap could not be removed from the transects. Without an ESS in place some items that could be seen on the surface had to be left in place because part of the item was sub-surface.

This task was completed in only 6 hrs, without all proper documentation in place I sent the crew home.

This crew will be on authorized break 3, 4, 5, and 6 February, 2011.

The UXO crew will return 7, February, 2011 to resume operations.

IMPORTANT PHONE CALLS/DECISIONS: Per phone call with Chris Cherniss (Environmental Protection Specialist) NASCC, he informed me the base Environmental Officer for NASCC will not allow the bee's nest on Transect #15 to be destroyed. I informed him of my plan to survey from Perimeter road to the nest, and then resume the survey at Oso Creek to the nest, this will leave Transect #15 with approximately 10' of the Transect not cut or surveyed. He seemed happy with this plan.

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Mostly cloudy and windy. Cold. High 42F. Winds N @ 20-30

VISITORS ON SITE: N/A

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jake Clement, Shawn Woods, Norm Piper, Scott Roberts,

SIGNATURE: Syd Rodgers **DATE:** 02/02/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	05/08/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: N/A

Site Preparation (including mobilization): SUXOS Mobilized

Site Survey: N/A

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: N/A

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: N/A

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: N/A

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

SUXOS Mobilized on Sunday 05/08/11, to be on site 05/09/11 to take delivery of Type #2 Magazines, and participate in another Bird Survey.

The remainder of the crew will mobilize 05/09/11

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Windy, Cloudy Skies, High 90F,Winds SSE@20-30mph, Gusting to over 40mph

VISITORS ON SITE: N/A

PERSONNEL ON SITE: Syd Rodgers,

SIGNATURE: Syd Rodgers **DATE:** 05/08/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	05/09/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: N/A

Site Preparation (including mobilization): N/A

Site Survey: Conducted another Bird Survey

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: N/A

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: N/A

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: N/A

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

SUXOS assisted with another bird survey

Approximately 09:00 R/T forklift was delivered

Approximately 11:30 hrs Type #2 magazines were delivered and placed IAW Work Plan

Received and inventoried tools and equipment delivered by Fed-ex, still waiting for another shipment

15:00 Secured for the day

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Windy, Cloudy Skies, High 90F,Winds SSE@20-30mph, Gusting to over 40mph

VISITORS ON SITE: N/A

PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Smiley Nava

SIGNATURE: Syd Rodgers **DATE:** 05/09/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	05/10/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX

SITE(s): MRP Incinerator Disposal Site

PROJECT NO: 112G01821

TASK CODES: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: N/A

Site Preparation (including mobilization): Initial Site Training, Review Work Plan and HASP, Verify Qualifications of all personnel, SUXOS conducted Site walk for entire crew.

Site Survey: N/A

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: N/A

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: N/A

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: N/A

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Remainder of crew mobilized 05/09/11. Pete Dummit, Nick Brantley, Tory Smith

Conducted Site Specific Training, Reviewed Work Plan and HASP, After phone calls Project Manager (Ken Grim) approved purchase of expendable equipment to conduct brush cutting operations, Conducted Site visit with entire crew, walked a few Transects to explain what has to be done on this project in the time allocated.

Made arrangements for R/T forklift to be returned to Vender on 05/11/11

Phone conversation with Mr. Gary Leflore (Navy POC) ref: access to Cabaniss Field on weekends, he authorized us to place our lock on the entrance gate for access when the Fire Department was not on duty. The access gate must remain locked due to the current threat levels.

Requested the Fire Department, when we do demo, to use their equipment to wet down the demo area with water and standby while demo operations are being conducted to quickly extinguish any fire started by our treatments.

Notified by UXO Site Manager, (Norm Piper) the local electrician that was scheduled to ground the explosive storage magazines is not available. TTNUS Houston is contracting another company to do the job.

On 05/11/11 Hands on classes will be conducted for new and old personnel on the proper use of magnetic locators for this project.

On 05/11/11 UXO Site Manager, (Norm Piper) will conduct training on GPS Unit for field personnel, upload and download of data.

17:00 Secure operations and all personnel depart Site.

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Generally cloudy. High 87F. Winds SE@20-30mph

VISITORS ON SITE: N/A

PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Nick Brantley, Tory Smith, Norm Piper

SIGNATURE: Syd Rodgers **DATE:** 05/10/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	05/11/2011
SHEET 1 OF 3	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.215A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Schonsdatd GA 52cx, White Magnetic Locator

Site Preparation (including mobilization): Installation of IVS

Site Survey: N/A

Vegetation Management: Started recutting transects to facilitate detector aided surface sweep operations

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: Site Manager conducted GPS training for field personnel

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: Has been installed, Pictures have been taken of seeds, and GPS locations have been logged

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: Site Manager demobilized today

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: N/A

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00, Safety Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

Installed IVS and all instruments were checked and found it to be operational

Started Brush cutting Transects

Transects Brush cut today were: Transects #1 thru #4 have been 100% cut

Transect #5 is 80% cut

Transect #6 is 60% cut

Had phonecon with NASCC POC (Gary Leflore) about providing us with a storage locker for tools and equipment left on site over night, plus a flammable storage locker for gas and oil. He believes he can provide containers requested.

Currently we are storing our tools and equipment overnight at the Fire Station located at Cabaniss Field. Fire Department is being very helpful with our requests.

R/T forklift was returned to Vender

Portable toilet was delivered to the site this AM (Skid-O-Kan)

Picked up second Brush Cutter from Vender and placed it into operation

Safety Officer departed the site in PM to purchase "Bravo Flag" materials and additional seed items locally

Assisted new personnel with electronic preparation and transfer of Time Sheets and expense reports

15:30 hrs Secured all field operations to Perform maintenance of tools and equipment, transport tools and equipment to Fire Station for overnight storage.

16:00 Secured for the day.

TETRA TECH NUS, INC.

IMPORTANT PHONE CALLS/DECISIONS: N/A	
FIELD TASK MODIFICATIONS: N/A	
WEATHER CONDITIONS: Mix of clouds and sun. High 85F. Winds SE@20-30mph	
VISITORS ON SITE: N/A	
PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Nick Brantley, Tory Smith, Norm Piper	
SIGNATURE: Syd Rodgers	**DATE:** 05/11/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	05/12/2011
SHEET 1 OF 4	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.215A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Schonsdatd 4ea GA 52cx Magnetic Ferris locators, 1ea White's all Metals Magnetic Locator

Site Preparation (including mobilization): N/A

Site Survey: N/A

Vegetation Management: Continued cutting Transects

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: Daily AM GPS data collection was logged at established locations

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: N/A

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00, Safety Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

UXO Team resumed cutting operations on Transects 1 thru 12 to aid in Mag and flag operations scheduled at a later date

Discussions with Mr. Gary Leflore (Navy POC) over the last couple of days has resulted in him being able to provide us with a flammable locker to store our gas and oil on site, and he is currently looking for a storage locker to store our brush cutters overnight so the crew won't have to take the brush cutters into the hotel each night for security.

At approximately 14:20 Safety placed all personnel in their vehicles due to thunder and lightning in the area, and then the heavens opened up into a down pour. We stayed in our vehicles until approximately 15:30 under lightning watch when at that time the SUXOS terminated all activities for the day.

I instructed the GPS operator not to take his end of day readings due to lightning still in the area.

All personnel proceeded to the Fire Station to download and secure tools and equipment for the day

A bird survey will be conducted on 05/13/11 (weather permitting) on Transects 14 thru 24, I am in hopes to have all Transects completely cut by COB 05/19/11 just in time for our first 4 day break.

Transects cut today are as follows:

Transect #6 80% cut

Transect #7 Complete

Transect #8 Complete

Transect #9 Complete

Transect #10 20% cut

16:00 Secured for the day

DATE	05/12/2011
SHEET 4 OF 4	

TETRA TECH NUS, INC.

IMPORTANT PHONE CALLS/DECISIONS: N/A
FIELD TASK MODIFICATIONS: N/A
WEATHER CONDITIONS: Partly cloudy with isolated thunderstorms, some severe. High 87F. Winds ESE@15-25mph. Rain 30%
VISITORS ON SITE: N/A
PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Nick Brantley, Tory Smith
SIGNATURE: Syd Rodgers **DATE:** 05/12/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	05/13/2011
SHEET 1 OF 3	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.215A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Schonstedt 4ea GA 52Cx Magnetic Ferrous locators, 1ea White's all Metals Magnetic Locator

Site Preparation (including mobilization): N/A

Site Survey: N/A

Vegetation Management: Continued cutting Transects

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: Daily AM and PM GPS data collection was logged at established locations

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used on this date

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: N/A

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00, Safety Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

Resumed cutting operations

At approximately 07:00 Smiley Nava arrived on Site to do another bird survey on Transects 14 thru 24. During the survey Mr. Nava spotted a bird's nest in a tree on Transect #16. Mr. Nava believes the nest is empty, but could not confirm it with/out additional equipment. Mr. Nava will return to the Site 05/14/11 with necessary equipment to inspect the nest more closely.

Transects cut today were:

Transect #10 completed

Transect #11 completed

Transect #12 completed

Transect #13 completed

Transect #14 20% cut

Mr. Gary Leflore (Navy POC) informed me today that the Flight Operations Officer wants our magazines to be relocated. Mr. Leflore and the Flight Officer will be out to the Site on Monday (05/16/11) to show me their recommendations. This information was passed to the Site Manager.

15:30 Secured all field operations, to perform maintenance of tools and equipment

16:00 Secured all tools and equipment and departed for the day

TETRA TECH NUS, INC.

IMPORTANT PHONE CALLS/DECISIONS: N/A
FIELD TASK MODIFICATIONS: N/A
WEATHER CONDITIONS: Partly cloudy skies. High around 90F. W winds shifting to E at 10-15mph
VISITORS ON SITE: N/A
PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Nick Brantley, Tory Smith, Smiley Nava
SIGNATURE: Syd Rodgers **DATE:** 05/13/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.215A, 05.240B
FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation	

SUMMARY OF DAILY PROGRESS:

Instruments Used: Schonstedt 4ea GA 52Cx Magnetic Ferrous locators, 1ea White's all Metals Magnetic Locator

Site Preparation (including mobilization): N/A

Site Survey: N/A

Vegetation Management: Continued cutting Transects

Detector Aided Surface Survey - Transect: #1 has been swept with one instrument thus far, the GA 52Cx

GPS Positional Data: Daily AM and PM GPS data collection was logged at established locations

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: N/A

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00, Safety Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

Resumed cutting operations

Sub contractor (Smiley Nava) returned today to investigate the bird nest located in Transect #16. The nest was currently not being used so he disturbed the nest so no other birds could move in. We are clear to continue operations.

Transects cut today:

Transect #14 Completed Last 80%

Transect #15 Completed

Transect #16 Completed

Transect #17 Completed

Transect #18 Completed

Transect #19 Completed

Transect #20 20% Complete

QC planted a seed in Transect #1,The SUXOS swept the Transect with the GA 52Cx and found multiple contacts plus the seed. Transect #1 will be swept 05/15/11 with the White's locator to finish the lane.

15:30 Secured all field operations, to maintain tools and equipment

16:00 Secured all tools and equipment then departed for the day.

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Abundant sunshine. High around 85F. Winds NE@10-20mph

VISITORS ON SITE: N/A

TETRA TECH NUS, INC.

PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Nick Brantley, Tory Smith, Smiley Nava	
SIGNATURE: Syd Rodgers	**DATE:** 05/14/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	05/15/2011
SHEET 1 OF 3	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.215A,05.240B

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Schonstedt 4ea GA 52Cx Magnetic Ferris locators, 1ea White's all Metals Magnetic Locator

Site Preparation (including mobilization): N/A

Site Survey: N/A

Vegetation Management: Continued cutting Transects

Detector Aided Surface Survey - Transect: Transect #1 was completed today, 31ea total contacts identified, plus the seed for Geo was buried as per the Work Plan.

GPS Positional Data: Daily AM and PM GPS data collection was logged at established locations

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: N/A

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00, Safety Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

Resumed cutting operations

Transects Cut today:

Transect #20 Complete

Transect #23 Complete

Transect #24 Complete

Transect #21 95% Complete

Transect #22 95% Complete

Transects #21 and #22 were cut from both ends of the Transect until the cutter encountered the creek with standing water, depth unknown. On both Transects there is a section of approximately 10 feet or more that could not be reached. With hip waders we can probably get these areas also.

All Transects have been re cut as much as possible with the exception of Transects #5, #6, #7 that have known hazards on the surface.

The UXO Team moved to Transect #1 to finish this lane. This Transect has been completed and is ready for Geophysical mapping.

15:30 Terminated all field activities, to perform maintenance of tools and equipment

16:00 Secured for the day

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Sunny. High 81F. Winds ENE@10-20mph

TETRA TECH NUS, INC.

VISITORS ON SITE: N/A	
PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Nick Brantley, Tory Smith	
SIGNATURE: Syd Rodgers	**DATE:** 05/15/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	05/16/2011
SHEET 1 OF 3	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.240B

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Schonstedt 4ea GA 52Cx Magnetic Ferrous locators, 1ea White's all Metals Magnetic Locator

Site Preparation (including mobilization): N/A

Site Survey: N/A

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: See Description of daily activities

GPS Positional Data: Daily AM and PM GPS data collection were logged at established locations, Data is included in Quality Control Daily Report

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: 1. 40mm Grenade, Control # 25, Picture #DSCN 0035, Transect #7, N 17143028.59 E 1328839.93. Located 1/12/11. 2. 40mm Grenade, Control #26, Picture #DSCN 36, Transect #7, N17143012.45, E 1328855.17. Located 1/12/11. 3. 2.75 inch Rocket Warhead, Control # 34, Picture # DSCN 34, Transect #4, N17143043.01, E 1328713.01. 4. 37mm Projectile, Control #28, Picture #DSCN #37, Transect #8, N 17142961.05, E 1328915.13.

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

UXO Team resumed detector aided surface sweeping:

Transect #2 Complete 64 Contacts identified, Surface seed #9 was found and logged

Transect #3 Complete 40 Contacts identified, Surface seed #7 was found and logged

Transect #4 Complete 61 Contacts identified, Surface seed #12 was found and logged

Transect #5 Complete Except known hazard area, 49 Contacts identified, Surface seed #8 was found and logged

Transect #6 Complete Except known hazard area, 72 Contacts identified, Surface seed #1 was found and logged

Transect #7 Complete Except known hazard area, 78 Contacts identified, surface seed #4 was found and logged

Transect #8 Complete 176 Contacts identified, Surface seed #3 was found and logged

Flammable locker was delivered to Site today, Provided by (Navy POC) Mr. Gary Leflore, Flammables can now be left on site in an approved container.

15:30 Secured field operations, to maintain tools and equipment

16:00 Secured for the day

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: A mix of clouds and sun. High 84F. Winds ENE@10-15mph

VISITORS ON SITE: N/A

DATE	05/16/2011
SHEET 3 OF 3	

TETRA TECH NUS, INC.

PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Nick Brantley, Tory Smith	
SIGNATURE: Syd Rodgers	**DATE:** 05/16/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	05/17/2011
SHEET 1 OF 3	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.240B

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Schonstedt4ea GA 52Cx Magnetic Ferrous locators, 1ea White's all Metals Magnetic Locator

Site Preparation (including mobilization): Frank Loney mobilized 5/16/11, Received site specific training and was put to work.

Site Survey: N/A

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: See Description of Daily Activities

GPS Positional Data: Daily AM and PM GPS data collection was logged at established locations, Data is included in Quality Control Daily Report

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: 37mm recovered on Transect #8 remains as MPPEH, all other items found this date have been certified as MDAS

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

TETRA TECH NUS, INC.

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: Transect #9, Control # 29, 1ea 2.75" rocket motor fins and 1ea CAD, Picture # DSCN0040, N 17143089.85 E 1328962.84. Transect #9, Control #30, 1ea 40mm Practice (Dummy) projectile, Picture #DSCN0041,N 17143041.65, E 1328961.39. Transect #10, Control # 31, 1ea CAD, 84EA 20mm ctg case, 3ea .50 caliber cartridge 14 ea 30 caliber blanks, 20ea 30 caliber Ctg case empty. Picture# DSCN0042. Transect #14, Control# 32, 1EA Flare ctg, Picture DSCN0043, N 17143056.32, E 1329209.42 All items declared MDAS.

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DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

UXO Team resumed detector aided surface sweeping:

Transect #9 Completed 67 Contacts MDAS recovered see Documentation of MEC/MPPEH encountered Blind seed #11 was recovered

Transect #10 Completed 30 Contacts MDAS recovered see Documentation of MEC/MPPEH encountered Blind seed #6 was recovered

Transect #11 Completed 248 Contacts Blind seed #5 was recovered

Transect #12 Completed 154 Contacts Blind seed #8 was recovered

Transect #13 Completed 155 Contacts No seed placed

Transect #14 Completed 153 Contacts MDAS recovered see Documentation of MEC/MPPEH encountered Blind seed #7 was recovered

Transect #15 Completed 203 Contacts Blind seed #1 was recovered

15:30 Terminated all field activities, to perform maintenance of tools and equipment, end of day QC GPS Checks

16:00 Secured for the day

TETRA TECH NUS, INC.

IMPORTANT PHONE CALLS/DECISIONS: N/A
FIELD TASK MODIFICATIONS: N/A
WEATHER CONDITIONS: Plentiful sunshine. High 84F. Winds SE@15-25mph
VISITORS ON SITE: N/A
PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Nick Brantley, Tory Smith, Frank Loney
SIGNATURE: Syd Rodgers **DATE:** 05/17/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	05/18/2011
SHEET 1 OF 3	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.240B

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Schonstedt 4ea GA 52Cx Magnetic Ferrous locators, 1ea White's all Metals Magnetic Locator

Site Preparation (including mobilization): N/A

Site Survey: N/A

Vegetation Management: Finished cutting Transects #20 and #21. Cut brush around magazine area

Detector Aided Surface Survey - Transect: See Description of Daily Activities

GPS Positional Data: Daily AM and PM GPS data collection was logged at established locations, Data is included in Quality Control Daily Report

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: N/A
.

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

UXO Team resumed detector aided surface sweeping:

Transect #16 Completed 124 Contacts Blind seed #12 was recovered

Transect #17 Completed 63 Contacts Blind seed # 4 was recovered

Transect #18 Completed 71 Contacts Blind seed #10 was recovered

Transect #19 Completed 56 Contacts Blind seed # 3 was recovered

Brush cutting activities was conducted on Transects #20 and #21 to completely open the Transects. At this time all Transects have been re cut to allow for Geophysical Mapping starting 05/23/11.

Brush cutting activities was conducted around the magazine area to a distance of 50 Feet.

Another Bird survey was requested and will be conducted on 05/21/11. A UXO escort will be provided.

Buried seeds have been installed in Transect #1 thru Transect #15 for Geophysical Mapping

Took delivery of a storage locker today, provided by the Environmental Office, NASCC. Tools and equipment can now be left on site so the gas powered tools don't have to be taken into local hotel rooms.

Was notified by Site Manager today that our first Demo day will be 05/28/11, requested energetic materials from Site Manager.

Was notified today by Navy Environmental, we would not be allowed to store bulk explosives on the Air Field, but could store items found in our magazines waiting treatment. Bulk explosives would have to be delivered on an as needed basis.

15:30 Terminated all field activities, maintenance of tools and equipment

16:00 Secured for the day

Note: The UXO team will start an authorized break 05/19/11, and resume operations 05/23/11

TETRA TECH NUS, INC.

IMPORTANT PHONE CALLS/DECISIONS: N/A
FIELD TASK MODIFICATIONS: N/A
WEATHER CONDITIONS: Mix of clouds and sun with gusty winds. High 84F. Winds SSE@20-30mph.
VISITORS ON SITE: N/A
PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Nick Brantley, Tory Smith, Frank Loney
SIGNATURE: Syd Rodgers **DATE:** 05/18/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	05/23/2011
SHEET 1 OF 3	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.240B, 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Schonstedt 4ea GA 52Cx Magnetic Ferrous locators, 1ea White's all Metals Magnetic Locator, Magnetometer type 858, Ferrous locator

Site Preparation (including mobilization): Project Geophysicist mobilized 05/22/11.

Site Survey: One UXO Technician was provided to Mr. Jim Coffman as UXO escort, during Geophysical Mapping and testing activities.

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: See Description of Daily Activities

GPS Positional Data: Daily AM and PM GPS data collection was not recorded due to no Data being collected.

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: Project Geophysicist (Jim Coffman) arrived on Site today

IVS: An AM and PM operational check was completed on all instruments used this date.

Geophysical Data Collection: Geophysical Mapping started today, Transects #1 thru Transect #8 were surveyed with magnetometer, Type 858.

Geophysical Data Processing and Interpretation: Data collected will be downloaded and sent to Tetra Tech for processing

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

TETRA TECH NUS, INC.

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: N/A
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DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

UXO Team resumed detector aided surface sweeping:

Transect #20 Completed 76 Contacts No Blind seed was placed in this lane

Transect #21 Completed 104 Contacts No Blind seed was placed in this lane

Transect #22 Completed 63 Contacts Blind Seed #13 was recovered

Transect #23 Completed 108 Contacts Blind Seed #12 was recovered

Transect #24 Completed 23 Contacts Blind Seed #18 was recovered

All Transects have been surface swept. All seeds that were placed were recovered.

Buried seeds to be used for Geophysical Mapping were installed on Transect #17 thru Transect #22, no buried seeds were placed on Transect #16, #23, and #24

Transect #1 thru Transect #8 was surveyed using an 858 magnetometer, after the instrument was verified over the IVS

After remaining Transects was surface swept the remainder of the UXO Team assisted QC installing blind seeds for Geophysical Mapping activities.

IMPORTANT PHONE CALLS/DECISIONS: Explosives were requested for delivery on 05/28/11. Demo operations are scheduled for 05/28/11; Notifications (by Mr. Gary Leflore) are in the process of being made IAW, Notification Plan for BLOW-IN-PLACE ACTIVITIES, dtd February 2011.

TETRA TECH NUS, INC.

FIELD TASK MODIFICATIONS: N/A
WEATHER CONDITIONS: Partly cloudy and windy. High 89F. Winds SSE @20-30mph
VISITORS ON SITE: Tom Douglas and Arnold "Pope" Burr (NAVEODTECHDIV) Conducting QA Audit
PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Tory Smith, Frank Loney, Jim Coffman (Project Geophysicist)
SIGNATURE: Syd Rodgers **DATE:** 05/23/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	05/24/2011
SHEET 1 OF 3	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.240B, 05.230A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Schonstedt 4ea GA 52Cx Magnetic Ferrous locators, 1ea White's all Metals Magnetic Locator, Magnetometer type 858, Ferrous locator

Site Preparation (including mobilization): N/A

Site Survey: One UXO Technician was provided to Mr. Jim Coffman as UXO escort, during Geophysical Mapping and testing activities.

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: See Description of Daily Activities

GPS Positional Data: Daily AM and PM GPS data collection was logged at established locations, Data is included in Quality Control Daily Report

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date.

Geophysical Data Collection: Transects #9 thru Transect #24 has been surveyed with magnetometer, Type 858.

Geophysical Data Processing and Interpretation: Data collected will be downloaded and sent to Tetra Tech for processing

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

TETRA TECH NUS, INC.

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: MPPEH, Control#29, 1ea AN-M23 Practice Bomb, Picture# DSCN 0050,Transect #5 N 17143059.4 E 1328761.87, MPPEH, Control #31, 1ea AN-M23 Practice Bomb, Picture# DSCN0050, Transect #5, N17143634.47 E 1328760.1 MPPEH, Control #32, 1ea AM-M23 Practice Bomb, Picture #DSCN 0053, Transect #5, N17143030.14 E1328758.54 MPPEH, Control #34,1ea Practice Bomb, Picture #55, Transect #5 N17143029.35 E 1328756.93 MPPEH, Control #38,1ea 2.75 inch Rocket Warhead, Picture #DSCN 0059, Transect #5, N 17143026.48 E 1328758.58 MPPEH, Control #39, 1ea 2.75 inch Rocket Warhead, Picture #DSCN 0059, Transect #5, N17143026.48 E 1328758.58
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DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

QC of all Transects, Transects #1 thru Transect #4 were 25% QC'd, Transects #5 thru Transect # 24 were 10% QC'd.

Geophysical Mapping has been completed on Transects #1 thru Transect #24 using the 858 Magnetometer.

Was contacted today by Bonded Lighting Protection System, they will arrive 05/25/11 to properly ground our magazine for storage of MEC/MPPEH, waiting treatment.

Started collecting MDAS on Transect #5, see (DOCUMENTATION OF MEC/MPPEH ENCOUNTERED) for information on items recovered and logged. All MEC/MPPEH was flagged and left in the field until proper storage facilities become available.

Demo operations have been rescheduled from 5/27/11 to 5/26/11 due to circumstances beyond our control. Energetic materials could be delivered on 5/26/11 but not on 5/27/11. All notifications are being made IAW Blow in Place, Activities Plan.

It was determined between QA Auditors, NOSSA, and Tetra Tech that ordnance items outside of designated Transects will be flagged and left in the field for later disposition unless it presents an immediate hazard.

Part of the UXO Team secured and departed the site at the normal, SUXOS, Safety, and designated escort stayed later to assist with Geophysical Mapping

16:30 All activities secured and departed for the day.

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

TETRA TECH NUS, INC.

WEATHER CONDITIONS: Mix of clouds and sun. High 89F. Winds SSE@20-30mph
VISITORS ON SITE: Tom Douglas and Arnold “Pope” Burr (NAVEODTECHDIV) Conducting QA Audit
PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Tory Smith, Frank Loney, Nick Brantley, Jim Coffman (Project Geophysicist)
SIGNATURE: Syd Rodgers **DATE:** 05/24/11

TETRA TECH NUS, INC.

NALF CABNISS, CORPUS CHRISTI, TEXAS

MEC FIELD ACTIVITY DAILY LOG

DATE	05/25/2011
SHEET 1 OF 3	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX

SITE(s): MRP Incinerator Disposal Site

PROJECT NO: 112G01821

TASK CODES: 05.240B, 05.230A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Schonstedt 4ea GA 52Cx Magnetic Ferrous locators, 1ea White's all Metals Magnetic Locator, Magnetometer type 858, Ferrous locator, EM 31 Locator

Site Preparation (including mobilization): N/A

Site Survey: One UXO Technician was provided to Mr. Jim Coffman as UXO escort, during Geophysical Mapping and testing activities.

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: Daily AM and PM GPS data collection was logged at established locations, Data is included in Quality Control Daily Report

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: See MDAS and MEC Tracking Log. Attached Below.

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date.

Geophysical Data Collection: Transects #1 thru #16 were swept with the EM-31

Geophysical Data Processing and Interpretation: Data collected will be downloaded and sent to Tetra Tech for processing

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: See MEC/MPPEH Logs for items recovered today.

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TETRA TECH NUS, INC.

NALF CABNISS, CORPUS CHRISTI, TEXAS

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00 hrs, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

Elements of UXO Team moved into Transect #6 (the known hazard area) to catalog, log, and record findings. MDAS will be transported to MDAS storage container, MEC/MPPEH will be left in the field for later disposition.

Transects #1 thru #16 were swept with the EM-31

Another escort was provided while MEC/MPPEH magazine was properly grounded today

Started making preparations for Demolition Operations scheduled for 5/27/11, sandbags were procured, and Demolition Supervisor reviewed SOP #7 UXO Demolition/Disposal Procedures.

Was informed by Gary Leflore that the runway will be closed all day Friday to air traffic, We will still try and stay within our 2PM-6PM window.

15:30 Secured all field operations

16:00 All personnel departed for the day

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Some clouds in AM then turning sunny. High 92F. Winds SSE@ 15-25mph.

VISITORS ON SITE: Tom Douglas and Arnold "Pope" Burr (NAVEODTECHDIV) Conducting QA Audit, Brian Syme (NAVFAC SE), Tread Kissam (NAVFAC SE)

PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Tory Smith, Frank Loney, Nick Brantley, Jim Coffman (Project Geophysicist)

SIGNATURE: Syd Rodgers **DATE:** 05/25/11

TETRA TECH NUS, INC.

NALF CABNISS, CORPUS CHRISTI, TEXAS

MDAS Tracking Log

CONTROL #	ITEM	Picture #	Area location	Northing	Easting	Date Found	Date Destroyed
53	(1) 2.75 inch Fins (1) CAD	DSCN0040	transect 9	17143089.85	1328962.84	5/17/2011	
54	40mm practice	DSCN0041	transect 9	17143041.65	1328961.39	5/17/2011	
55	(33) 20mm cart cases	DSCN0042	transect 10	17143014.56	1329011.11	5/17/2011	
56	Flare Cart	DSCN0043	transect 14	17143056.32	1329209.42	5/17/2011	
30	20mm TP	DSCN0051	transect 5	17143035.60	1328761.36	5/24/2011	
33	AN-M23	DSCN0054	transect 5	17143027.93	1328758.12	5/24/2011	
35	(2) 20mm TP	DSCN0056	transect 5	17143029.16	1328762.11	5/24/2011	
36	CAD & OJIVE 20mm	DSCN0057	transect 5	17143026.03	1328759.56	5/24/2011	
37	2.25" Balistic Nose	DSCN0058	transect 5	17143017.61	1328761.13	5/24/2011	
57	CAD	DSCN0060	transect 6	17143041.61	1328812.92	5/25/2011	
40	(7) 3.5" rockets	DSCN0061	transect 6	17143031.63	1328810.36	5/25/2011	
43	(27) CAD's	DSCN0065	transect 6	17142989.65	1328812.72	5/25/2011	
44	(4) 20mm TP, (9) 20mm cart cases	DSCN0066	transect 6	17142989.65	1328812.72	5/25/2011	
45	(4) 40mm cart cases	DSCN0067	transect 6	17142989.65	1328812.72	5/25/2011	
46	(23) ass small arms cart cases	DSCN0068	transect 6	17142989.65	1328812.72	5/25/2011	

TETRA TECH NUS, INC.

NALF CABNISS, CORPUS CHRISTI, TEXAS

MEC Energetics Tracking Log

CONTROL #	ITEM	Picture #	Area location	Northing	Easting	Date Found	Date Destroyed
25	40mm grenade	DSCN0035	transect 7	17143028.59	1328839.93	1/12/2011	
26	40mm grenade	DSCN0036	transect 7	17143012.45	1328855.17	1/12/2011	
27	2.75 inch warhead	DSCN0033	transect 4	17143043.01	1328713.01	5/16/2011	
28	37mm	DSCN0037	transect 8	17142961.05	1328915.13	5/16/2011	
29	AN-M23	DSCN0050	transect 5	17143059.40	1328761.87	5/24/2011	
31	AN-M23	DSCN0052	transect 5	17143634.47	1328760.10	5/24/2011	
32	AN-M23	DSCN0053	transect 5	17143030.14	1328758.54	5/24/2011	
34	AN-M23	DSCN0055	transect 5	17143029.35	1328756.93	5/24/2011	
38	2.75" warhead	DSCN0059	transect 5	17143026.48	1328758.58	5/24/2011	
39	2.75" warhead	DSCN0059	transect 5	17143026.48	1328758.58	5/24/2011	

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	05/26/2011
SHEET 1 OF 3	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.240B, 05.230A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Schonstedt 4ea GA 52Cx Magnetic Ferrous locators, 1ea White's all Metals Magnetic Locator, Magnetometer type 858, Ferrous locator, EM 31 Locator

Site Preparation (including mobilization): N/A

Site Survey: One UXO Technician was provided to Mr. Jim Coffman as UXO escort, during Geophysical Mapping and testing activities.

Vegetation Management: Surgically cut remaining brush from Transect #7.

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: Daily AM and PM GPS data collection was logged at established locations, Data is included in Quality Control Daily Report

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: See MDAS and MEC Tracking Log below.

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date.

Geophysical Data Collection: Geophysical Mapping was conducted today on Transects #17 thru Transect #24. This concludes Geophysical Mapping with the Geometrics 858 and the EM-31. The entire area still needs to be surveyed with the EM-61.

Geophysical Data Processing and Interpretation: Data collected will be downloaded and sent to Tetra Tech for processing

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: See MEC/MPPEH Log for items recovered today. Attached Below.
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DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00 hrs, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

Elements of UXO Team moved into Transect #7 (the known hazard area) to surgically cut remaining brush then catalog, log, and record findings. MDAS was be transported to MDAS storage container, There was no MEC/MPPEH found in this section of Transect #7.

Geophysical Mapping was conducted today on Transects #17 thru Transect #24. This concludes Geophysical Mapping with the Geometrics 858 and the EM-31. The entire area still needs to be surveyed with the EM-61.

The QA Audit completed their audit today, No major findings were noted. Some issues that came up were corrected on the spot may be written as comments but will not be written as deficiencies, i.e. (one persons 40hr certificate was not in his file but was produced, QC Training for the QC Officer was not in his file but was produced). Final report of findings should be issued by next week.

Magazine area was prepared for storage of MEC/MPPEH, (fire symbol) was installed, Locks were placed on the containers, and Transportation Vehicle was outfitted with wheel chocks, a wooden bed with block and brace for transport container, fire extinguishers, vehicle inspection forms and first aid kit.

Equipment was obtained to surgically cut brush on Transects #5, #6, and #7 (known hazard area) prior to finishing surface sweep.

Prepared four locations for demolition operations, to be conducted on 05/27/11, sand bags and plywood was delivered to each location.

15:30 Terminated all field activities

16:00 Secured for the day

TETRA TECH NUS, INC.

IMPORTANT PHONE CALLS/DECISIONS: N/A
FIELD TASK MODIFICATIONS: N/A
WEATHER CONDITIONS: Partly cloudy skies. High near 90F. Winds E @ 10-20mph
VISITORS ON SITE: Tom Douglas and Arnold "Pope" Burr (NAVEODTECHDIV) Conducting QA Audit,
PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Tory Smith, Frank Loney, Nick Brantley, Jim Coffman (Project Geophysicist)
SIGNATURE: Syd Rodgers **DATE:** 05/26/11

TETRA TECH NUS, INC.

NALF CABNISS, CORPUS CHRISTI, TEXAS

MDAS Tracking Log

CONTROL #	ITEM	Picture #	Area location	Northing	Easting	Date Found
	(1) 2.75 inch Fins (1) CAD	DSCN0040	transect 9	17143089.85	1328962.84	5/17/2011
	40mm practice	DSCN0041	transect 9	17143041.65	1328961.39	5/17/2011
	(33) 20mm cart cases	DSCN0042	transect 10	17143014.56	1329011.11	5/17/2011
	Flare Cart	DSCN0043	transect 14	17143056.32	1329209.42	5/17/2011
30	20mm TP	DSCN0051	transect 5	17143035.60	1328761.36	5/24/2011
33	AN-M23	DSCN0054	transect 5	17143027.93	1328758.12	5/24/2011
35	(2) 20mm TP	DSCN0056	transect 5	17143029.16	1328762.11	5/24/2011
36	CAD & OJIVE 20mm	DSCN0057	transect 5	17143026.03	1328759.56	5/24/2011
37	2.25" Ballistic Nose	DSCN0058	transect 5	17143017.61	1328761.13	5/24/2011
	CAD	DSCN0060	transect 6	17143041.61	1328812.92	5/25/2011
40	(7) 3.5" rockets	DSCN0061	transect 6	17143031.63	1328810.36	5/25/2011
43	(27) CAD's	DSCN0065	transect 6	17142989.65	1328812.72	5/25/2011
44	(4) 20mm TP, (9) 20mm cart cases	DSCN0066	transect 6	17142989.65	1328812.72	5/25/2011
45	(4) 40mm cart cases	DSCN0067	transect 6	17142989.65	1328812.72	5/25/2011
46	(23) ass small arms cart cases	DSCN0068	transect 6	17142989.65	1328812.72	5/25/2011
47	CAD	DSCN0069	transect 7	17143018.45	1328860.60	5/26/2011
48	40mm shape	DSCN0070	transect 7	17143017.85	1328856.66	5/26/2011
49	(4)CAD's,(2)40mm fuze parts	DSCN0072	transect 7	17143022.46	1328859.54	5/26/2011
	(1) 40mm cart. Case					
50	(4)20mmTP,(1)40mm prac.	DSCN0073	transect-7	17143014.64	1328863.13	5/26/2011
	(4)CAD's,(15) asst cart cases					
	(1)40mm cart case,(1)40mmfuze parts					
51	(1)2.75"fins, (16) asst cart cases	DSCN0074	transect-7	17143008.79	1328863.49	5/26/2011

TETRA TECH NUS, INC.

NALF CABNISS, CORPUS CHRISTI, TEXAS

52	(3)20mm TP,(8)40mm asst pices	DSCN0075	transect-7	17143004.00	1328858.32	5/26/2011
	(4)CAD's, (2)asst cart cases					

MEC Energetics Tracking Log

CONTROL #	ITEM	Picture #	Area location	Northing	Easting	Date Found	Date Destroyed
25	40mm grenade	DSCN0035	transect 7	17143028.59	1328839.93	1/12/2011	
26	40mm grenade	DSCN0036	transect 7	17143012.45	1328855.17	1/12/2011	
27	2.75 inch warhead	DSCN0033	transect 4	17143043.01	1328713.01	5/16/2011	
28	37mm	DSCN0037	transect 8	17142961.05	1328915.13	5/16/2011	
29	AN-M23	DSCN0050	transect 5	17143059.40	1328761.87	5/24/2011	
31	AN-M23	DSCN0052	transect 5	17143634.47	1328760.10	5/24/2011	
32	AN-M23	DSCN0053	transect 5	17143030.14	1328758.54	5/24/2011	
34	AN-M23	DSCN0055	transect 5	17143029.35	1328756.93	5/24/2011	
38	2.75" warhead	DSCN0059	transect 5	17143026.48	1328758.58	5/24/2011	
39	2.75" warhead	DSCN0059	transect 5	17143026.48	1328758.58	5/24/2011	

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	05/27/2011
SHEET 1 OF 3	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.240B, 05.230A, 05.255A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Schonstedt 4ea GA 52Cx Magnetic Ferrous locators, 1ea White's all Metals Magnetic Locator, Magnetometer type 858, Ferrous locator, EM 31 Locator, EM-61

Site Preparation (including mobilization): N/A

Site Survey: One UXO Technician was provided to Mr. Jim Coffman as UXO escort, during Geophysical Mapping and testing activities.

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: Daily AM and PM GPS data collection was logged at established locations, Data is included in Quality Control Daily Report

MEC Management Treatment/Disposal: Performed demolition operations on 4ea items of MPPEH, Control #'s 25, 26, 27, and 28 were treated. Items 25, 26, and 28 were completely destroyed, Item #27 low ordered and still contains some residue, item placed in storage magazine and will be retreated at a later date. All went well.

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date.

Geophysical Data Collection: Geonics EM61-MK2 was used for QC checks and IVS performance. Geophysical Mapping was conducted on Transects #13 thru #24

Geophysical Data Processing and Interpretation: Data collected will be downloaded and sent to Tetra Tech for processing

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

TETRA TECH NUS, INC.

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: See MEC/MPPEH Logs, for items destroyed this date. Control # 27 was attacked and partially destroyed, Item still has possible residue, moved to MEC Storage Magazine, waiting for another Demo day.
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DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00 hrs, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

Started preparations for Demolitions scheduled for today. Four items to treat, Control # 25, 26, 27, and 28.

Waiting for donor explosives to be delivered.

Engineering controls were established (sand bags around each item to reduce frag and noise.

Partial shipment of donor explosives arrived at approximately 10:30 hrs (Conway Freight)

Secord partial arrived at approximately 12:30 hrs (Fed ex)

14:00 explosive safety briefing (all personnel), when the NAS Fire Department arrived on site.

14:30 Each target area was wet down by Fire Dept to reduce possibility of fire after detonation.

15:40 First Shot

15:43 Second Shot

15:45 Third Shot

15:47 Fourth Shot

16:20 Clean up shot (all went well)

After Team Leader and Safety checked all demolition sites I requested Fire Dept to inspect the area for anything that might be smoldering, they gave their ok and left the area.

16:30 Terminated all field operations

17:00 Secured for the day

TETRA TECH NUS, INC.

IMPORTANT PHONE CALLS/DECISIONS: N/A	
FIELD TASK MODIFICATIONS: N/A	
WEATHER CONDITIONS: Some clouds in AM turning sunny in PM. High 92F. Winds SE@15-25mph	
VISITORS ON SITE: Michael Harbison (NASCCFD), Alex Balderas (NASCCFD), Kirk Oclgado (NASCCFD), Chris Cherniss (NAFFAC), Gary Leflore (PW ENV)	
PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Tory Smith, Frank Loney, Nick Brantley, Jim Coffman (Project Geophysicist)	
SIGNATURE: Syd Rodgers	**DATE:** 05/27/11

TETRA TECH NUS, INC.

NALF CABNISS, CORPUS CHRISTI, TEXAS

MDAS Tracking Log

CONTROL #	ITEM	Picture #	Area location	Northing	Easting	Date Found
53	(1) 2.75 inch Fins (1) CAD	DSCN0040	transect 9	17143089.85	1328962.84	5/17/2011
54	40mm practice	DSCN0041	transect 9	17143041.65	1328961.39	5/17/2011
55	(33) 20mm cart cases	DSCN0042	transect 10	17143014.56	1329011.11	5/17/2011
56	Flare Cart	DSCN0043	transect 14	17143056.32	1329209.42	5/17/2011
30	20mm TP	DSCN0051	transect 5	17143035.60	1328761.36	5/24/2011
33	AN-M23	DSCN0054	transect 5	17143027.93	1328758.12	5/24/2011
35	(2) 20mm TP	DSCN0056	transect 5	17143029.16	1328762.11	5/24/2011
36	CAD & OJIVE 20mm	DSCN0057	transect 5	17143026.03	1328759.56	5/24/2011
37	2.25" Balistic Nose	DSCN0058	transect 5	17143017.61	1328761.13	5/24/2011
57	CAD	DSCN0060	transect 6	17143041.61	1328812.92	5/25/2011
40	(7) 3.5" rockets	DSCN0061	transect 6	17143031.63	1328810.36	5/25/2011
43	(27) CAD's	DSCN0065	transect 6	17142989.65	1328812.72	5/25/2011
44	(4) 20mm TP, (9) 20mm cart cases	DSCN0066	transect 6	17142989.65	1328812.72	5/25/2011
45	(4) 40mm cart cases	DSCN0067	transect 6	17142989.65	1328812.72	5/25/2011
46	(23) ass small arms cart cases	DSCN0068	transect 6	17142989.65	1328812.72	5/25/2011
47	CAD	DSCN0069	transect 7	17143018.45	1328860.60	5/26/2011
48	40mm shape	DSCN0070	transect 7	17143017.85	1328856.66	5/26/2011
49	(4)CAD's,(2)40mm fuze parts	DSCN0072	transect 7	17143022.46	1328859.54	5/26/2011
	(1) 40mm cart. Case					
50	(4)20mmTP,(1)40mm prac.	DSCN0073	transect-7	17143014.64	1328863.13	5/26/2011
	(4)CAD's,(15) asst cart cases					
	(1)40mm cart case,(1)40mmfuze parts					
51	(1)2.75"fins, (16) asst cart cases	DSCN0074	transect-7	17143008.79	1328863.49	5/26/2011
52	(3)20mm TP,(8)40mm asst pices	DSCN0075	transect-7	17143004.00	1328858.32	5/26/2011
	(4)CAD's, (2)asst cart cases					

TETRA TECH NUS, INC.

NALF CABNISS, CORPUS CHRISTI, TEXAS

MEC Energetics Tracking Log

CONTROL #	ITEM	Picture #	Area location	Northing	Easting	Date Found	Date Destroyed
25	40mm grenade	DSCN0035	transect 7	17143028.59	1328839.93	1/12/2011	5/27/2011
26	40mm grenade	DSCN0036	transect 7	17143012.45	1328855.17	1/12/2011	5/27/2011
27	2.75 inch warhead	DSCN0033	transect 4	17143043.01	1328713.01	5/16/2011	Still Pending
28	37mm	DSCN0037	transect 8	17142961.05	1328915.13	5/16/2011	5/27/2011
29	AN-M23	DSCN0050	transect 5	17143059.4	1328761.87	5/24/2011	
31	AN-M23	DSCN0052	transect 5	17143634.47	1328760.1	5/24/2011	
32	AN-M23	DSCN0053	transect 5	17143030.14	1328758.54	5/24/2011	
34	AN-M23	DSCN0055	transect 5	17143029.35	1328756.93	5/24/2011	
38	2.75" warhead	DSCN0059	transect 5	17143026.48	1328758.58	5/24/2011	
39	2.75" warhead	DSCN0059	transect 5	17143026.48	1328758.58	5/24/2011	

TETRA TECH NUS, INC.

NALF CABNISS, CORPUS CHRISTI, TEXAS

MEC FIELD ACTIVITY DAILY LOG

DATE	05/28/2011
SHEET 1 OF 3	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.240B, 05.230A,

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Schonstedt 4ea GA 52Cx Magnetic Ferrous locators, 1ea White's all Metals Magnetic Locator, Magnetometer type 858, Ferrous locator, EM 31 Locator, EM-61

Site Preparation (including mobilization): N/A

Site Survey: One UXO Technician was provided to Mr. Jim Coffman as UXO escort, during Geophysical Mapping and testing activities.

Vegetation Management: Brush cutting today involved surgical cutting of Transects #5 and #6, The UXO Team cut a path through the known hazard areas for Geophysics to do their mapping with all three instruments.

Detector Aided Surface Survey - Transect: A surface sweep was conducted in the hazard area on Transect #5 and Transect #6 two items were missed by UXO sweep team on Transect #5. QC failure. The Transect was redone and the items were located. QC then passed the Transect. On Transect #5, 55 additional contacts were encountered and Transect #6 there was an additional 59 contacts. Both Transects are now complete. See MEC Tracking log for MPPEH items recovered.

GPS Positional Data: Daily AM GPS data collection was logged at established locations; Data is included in Quality Control Daily Report. PM GPS data collection was not collected today due to lack of satellites.

MEC Management Treatment/Disposal: The demolition sites used on 5/27/11 were checked for any hazardous materials. The only residue found was on Transect #4, a 2.75" rocket Warhead that was only partially destroyed. The residue was placed in the MEC Storage magazine pending further disposition.

MPPEH Management and Certification: See MEC log for items recovered today, all items determined to be MPPEH was transported to the MEC Storage magazine pending final disposition.

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: All Geophysical instrumentation was tested and inspected as per the Work Plan.

IVS: An AM and PM operational check was completed on all instruments used this date.

Geophysical Data Collection: Geonics EM61-MK2 was used for QC checks and IVS performance. Geophysical Mapping was conducted on Transects #5, and #6. The 858 Magnetometer, EM-31 and the EM 61 were used for mapping.

Geophysical Data Processing and Interpretation: Data collected will be downloaded and sent to Tetra Tech for processing

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

TETRA TECH NUS, INC.

NALF CABNISS, CORPUS CHRISTI, TEXAS

Demobilization: N/A

Site Specific Final Report Preparation And Approved

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: See MEC/MPPEH Logs
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DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00 hrs, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

Surgical cutting was conducted on Transects#5 and #6 in the known hazard area.

Surface sweep was conducted in Transects#5 and #6, (2) (2.75 Inch Rocket Fins) MDAS items missed by UXO sweep team on Transect #5. QC failed Transect. Transect was redone and passed QC inspection.

Logged MPPEH was transported to MEC Storage magazine.

Demolition sites used on 5/27/11 were checked for residue, only residue was on Transect #4, 2.75" rocket warhead that did not completely detonate, transported to MEC storage magazine, will have to be re treated at a later date.

Geophysical mapping of the area is complete as of this date.

Sent 3 people back to the hotel this afternoon, due to lack of work. Only a partial crew will be on site on 5/29/11 tying up loose ends, waiting for dig sheet to reacquire targets.

15:30Terminated field activities

16:00 Secured for the day

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

DATE	05/28/2011
SHEET 3 OF 3	

TETRA TECH NUS, INC.

NALF CABNISS, CORPUS CHRISTI, TEXAS

WEATHER CONDITIONS: A mix of clouds and sun with gusty winds. High near 90F. Winds SSE@20-30mph
VISITORS ON SITE: N/A
PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Tory Smith, Frank Loney, Nick Brantley, Jim Coffman (Project Geophysicist)
SIGNATURE: Syd Rodgers **DATE:** 05/28/11

TETRA TECH NUS, INC.

NALF CABNISS, CORPUS CHRISTI, TEXAS

MDAS Tracking Log

CONTROL #	ITEM	Picture #	Area location	Northing	Easting	Date Found	Date Destroyed
53	(1) 2.75 inch Fins (1) CAD	DSCN0040	transect 9	17143089.85	1328962.84	5/17/2011	
54	40mm practice	DSCN0041	transect 9	17143041.65	1328961.39	5/17/2011	
55	(33) 20mm cart cases	DSCN0042	transect 10	17143014.56	1329011.11	5/17/2011	
56	Flare Cart	DSCN0043	transect 14	17143056.32	1329209.42	5/17/2011	
30	20mm TP	DSCN0051	transect 5	17143035.60	1328761.36	5/24/2011	
33	AN-M23	DSCN0054	transect 5	17143027.93	1328758.12	5/24/2011	
35	(2) 20mm TP	DSCN0056	transect 5	17143029.16	1328762.11	5/24/2011	
36	CAD & OJIVE 20mm	DSCN0057	transect 5	17143026.03	1328759.56	5/24/2011	
37	2.25" Balistic Nose	DSCN0058	transect 5	17143017.61	1328761.13	5/24/2011	
57	CAD	DSCN0060	transect 6	17143041.61	1328812.92	5/25/2011	
40	(7) 3.5" rockets	DSCN0061	transect 6	17143031.63	1328810.36	5/25/2011	
43	(27) CAD's	DSCN0065	transect 6	17142989.65	1328812.72	5/25/2011	
44	(4) 20mm TP, (9) 20mm cart cases	DSCN0066	transect 6	17142989.65	1328812.72	5/25/2011	
45	(4) 40mm cart cases	DSCN0067	transect 6	17142989.65	1328812.72	5/25/2011	
46	(23) ass small arms cart cases	DSCN0068	transect 6	17142989.65	1328812.72	5/25/2011	
47	CAD	DSCN0069	transect 7	17143018.45	1328860.60	5/26/2011	
48	40mm shape	DSCN0070	transect 7	17143017.85	1328856.66	5/26/2011	
49	(4)CAD's,(2)40mm fuze parts	DSCN0072	transect 7	17143022.46	1328859.54	5/26/2011	
	(1) 40mm cart. Case						
50	(4)20mmTP,(1)40mm prac.	DSCN0073	transect-7	17143014.64	1328863.13	5/26/2011	
	(4)CAD's,(15) asst cart cases						
	(1)40mm cart case,(1)40mmfuze parts						
51	(1)2.75"fins, (16) asst cart cases	DSCN0074	transect-7	17143008.79	1328863.49	5/26/2011	
52	(3)20mm TP,(8)40mm asst pices	DSCN0075	transect-7	17143004.00	1328858.32	5/26/2011	

TETRA TECH NUS, INC.

NALF CABNISS, CORPUS CHRISTI, TEXAS

	(4)CAD's, (2)asst cart cases						
59	(2) 2.75" fins	DSCN0087	transect 5	17143029.47	1328760.84	5/28/2011	

MEC Energetics Tracking Log

CONTROL #	ITEM	Picture #	Area location	Northing	Easting	Date Found	Date Destroyed
25	40mm grenade	DSCN0035	transect 7	17143028.59	1328839.93	1/12/2011	5/27/2011
26	40mm grenade	DSCN0036	transect 7	17143012.45	1328855.17	1/12/2011	5/27/2011
27	2.75 inch warhead	DSCN0033	transect 4	17143043.01	1328713.01	5/16/2011	Still Pending
28	37mm	DSCN0037	transect 8	17142961.05	1328915.13	5/16/2011	5/27/2011
29	AN-M23	DSCN0050	transect 5	17143059.40	1328761.87	5/24/2011	
31	AN-M23	DSCN0052	transect 5	17143634.47	1328760.10	5/24/2011	
32	AN-M23	DSCN0053	transect 5	17143030.14	1328758.54	5/24/2011	
34	AN-M23	DSCN0055	transect 5	17143029.35	1328756.93	5/24/2011	
38	2.75" warhead	DSCN0059	transect 5	17143026.48	1328758.58	5/24/2011	
39	2.75" warhead	DSCN0059	transect 5	17143026.48	1328758.58	5/24/2011	
58	AN MK23	DSCN0085	transect 5	17143034.18	1328763.47	5/28/2011	
60	AN MK23	DSCN0088	transect 5	17143023.16	1328759.43	5/28/2011	
61 & 62	(2) 2.75" warheads	DSCN0089	transect 5	17143009.10	1328760.62	5/28/2011	

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	05/29/2011
SHEET 1 OF 3	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.200A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Schonstedt 1ea GA 52Cx Magnetic Ferrous Locator, 858 Magnetic Locator with GPS

Site Preparation (including mobilization): N/A

Site Survey: One UXO Technician was provided to Mr. Jim Coffman, while he collected additional GPS Data

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: Mr. Coffman collected GPS locations of Non Ordnance surface metals on all 24 Transects

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date.

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: Data collected will be downloaded and sent to Tetra Tech for processing

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approved: N/A

DATE	05/29/2011
SHEET 3 OF 3	

TETRA TECH NUS, INC.

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: No MEC/MPPEH was recovered this date
.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Limited crew arrived on Site at 07:00 hrs, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

Checked with Project Geophysicist and he only needed one person as escort, released Frank Loney with 2 Hr show up time

11:30 Terminated all field activities, Mr. Coffman verified his data

12:00 Secured for the day

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Mix of clouds and sun with gusty winds. High 90F. Winds SE @25-35 gusting to 40mph

VISITORS ON SITE: N/A

PERSONNEL ON SITE: Syd Rodgers, Pete Dummit, Tory Smith, Frank Loney, Jim Coffman (Project Geophysicist)

SIGNATURE: Syd Rodgers **DATE:** 05/29/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	05/31/2011
SHEET 1 OF 3	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**:

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Trimble Hand held GPS unit

Site Preparation (including mobilization): N/A

Site Survey: N/A

Vegetation Management: Cut grass along perimeter road, with brush cutter

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: Daily GPS data collection was logged at established locations, Data is included in Quality Control Daily Report

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: Cataloged and transported MEC/MPPEH recovered on Transect #5

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date.

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: See MEC/MPPEH/MDAS Logs for items cataloged and transported on 5/31/11

.

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00 hrs, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

Team moved to Transect #5 to log and catalog MPPEH/MEC recovered on surface sweep of Transect #5 in the known hazard area, items recovered were separated into MPPEH and MDAS piles and transported to the appropriate storage areas.

Some more grass cutting was required along perimeter road where our road barriers are kept when not in use.

Another bird survey was requested and will take place 6/4/11 starting at 07:30 until all 24 Transects have been surveyed. This survey should carry us thru the next 10 day work cycle.

With all UXO surveys done and all the Geophysical surveys complete, the Site Manager informed me that we would start our 4 day break starting today and returning on Saturday 6/4/11 to start the reacquire phase.

11:00 Terminated all field activities and departed for the day

IMPORTANT PHONE CALLS/DECISIONS: Received call from Site Manager to start 4 day break today and return to work 6/4/11, if reaquire coordinates have been issued

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Partly cloudy. High 91F. Winds SE@20-30mph

VISITORS ON SITE: N/A

PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Tory Smith, Frank Loney, Nick Brantley, Jim Coffman (Project Geophysicist)

SIGNATURE: Syd Rodgers **DATE:** 05/31/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	06/12/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.255A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Trimble Hand held GPS unit, Schonstedt 52Cx, White all metals detector

Site Preparation (including mobilization): N/A

Site Survey: N/A

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: Daily GPS data collection was logged at established locations, Data is included in Quality Control Daily Report

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date.

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: Anomaly Intrusive Investigation Continues

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: No MEC/MPPEH recovered or transported today

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00 hrs, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

UXO Team Anomaly Digs completed today: 19,17,14,28,39,44,124,431,416,265,239, and 238.

For digs today see TARGET EXCAVATION FIELD TRACKING FORM 6/12/11 (attached)

Note: Anomaly #28 and #39 were no contact, excavations were taken to size 60 inches X depth 48 inches.

13:30 Terminated all field activities

14:00 Secured for the day

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Sunshine with clouds mixed. High 95F. Winds SE@ 14mph

VISITORS ON SITE: N/A

SIGNATURE: Robert Shauger **DATE:** 06/12/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	06/04/2011
SHEET 1 OF 4	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.255A,05.235A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Trimble Hand held GPS unit, G858 Magnetometer, Schonstedt 52Cx

Site Preparation (including mobilization): N/A

Site Survey: N/A

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: Daily GPS data collection was logged at established locations, Data is included in Quality Control Daily Report

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date.

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: Anomaly Reacquisition was started today

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: No MEC/MPPEH recovered or transported today

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 08:00 hrs, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

SUXOS arrived at 07:00hrs today to act as UXO escort for Mr. Smiley Nava (Bird Survey Biologist)

What will probably be the last Bird Survey was conducted today, no nests were found and was cleared to continue operating

The reacquisition phase started today, the selected picks were loaded into our hand held Trimble GPS unit, then a two man unit from the UXO Team started reacquiring the picks on the ground and placing a flag at that location. At a later time Mr. Jim Coffman (Project Geophysicist) will come behind the UXO Team with his 858 magnetometer and pin point the target for investigation.

Flags were placed at 24 different Picks today: 68,42,72,69,60,36,13,5,47,50,24,51,15,14,20,22,43,21,73,37,32,17,1,and 40

The picks located today:

Pick 68 Transect #1 OK Pin Point location N17143196.27 E 1328555.11

Pick 42 Transect #1 OK Pin Point location N17143017.37 E1328564.93

Pick 60 Transect #2 OK Pin Point location N17143102.42 E1328609.72

Pick 69 Transect #2 OK Pin Point location N17143191.09 E1328613.21

Pick 72 Transect #2 OK Pin Point location N17143209.28 E1328605.74

Pick 13 Transect #4 OK Pin Point location N17142757.75 E1328711.29

Pick 36 Transect #4 OK Pin Point location N17142999.18 E1328709.94

Pick 50 Transect #5 OK Pin Point location N17143041 E1328765.82

Pick 47 Transect #5 OK Pin Point location N17143028.78 E1328762.86

Pick 5 Transect #5 OK Pin Point location N17142547.89 E1328762.16

Pick 24 Transect #6 OK Pin Point location N17142943.73 E1328808.69

Pick 51 Transect #7 OK Pin Point location N17143047 E1328864.64

Pick 15 Transect #7 OK Pin Point location N17142839.85 E1328859.43

Pick 01 Transect #7 OK Pin Point location N17142452.02 E1328862.25

Pick 14 Transect #8 OK Pin Point location N17142771.94 E1328916.05

Pick 20 Transect #8 OK Pin Point location N17142884.99 E1328909.21

Pick 21 Transect #8 OK Pin Point location N17142889.24 E1328909.21

Pick 22 Transect #8 OK Pin Point location N17142889.87 E1328910.59

Pick 40 Transect #8 OK Pin Point location N17143004.32 E1328910.57

Pick 43 Transect #8 OK Pin Point location N17143008.83 E1328914.67

Changed from 10hrs to 8 hrs per day due to heat and humidity

Recorded Seal and Key numbers on MDAS Container

Segregated MDAS waiting further demil, from MPPEH in storage magazine, while at magazine left a copy of MEC Cumulative Summary log in Magazine to keep track of NEW in storage.

Demo operations still scheduled for 6/10/11

15:30 Terminated all field activities

16:00 Departed for the day

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Plenty of sunshine. High near 90F. Winds ESE@15-25mph

TETRA TECH NUS, INC.

VISITORS ON SITE: Smiley Nava (Bird Surveyor)
PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Tory Smith, Frank Loney, Nick Brantley, Jim Coffman (Project Geophysicist)
SIGNATURE: Syd Rodgers **DATE:** 06/04/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	06/05/2011
SHEET 1 OF 4	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.255A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Trimble Hand held GPS unit, G-858 Magnetometer, Schonstedt 52Cx

Site Preparation (including mobilization): N/A

Site Survey: N/A

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: Daily GPS data collection was logged at established locations, Data is included in Quality Control Daily Report

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date.

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: Continue Anomaly Reacquisition.

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: No MEC/MPPEH recovered or transported today

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 08:00 hrs, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

Flags were placed at 25 different pick locations today: 52,18,11,70,44,57,27,16,26,48,33,31,25,19,2,62,38,34,7,64,23,12,56,54 and 29

The picks selected today:

Pick 73 Transect #9 OK Pin Point location N17143223 E1328961

Pick 37 Transect #9 OK No GPS numbers for #37

Pick 32 Transect #9 Equipment malfunction-see below

Pick 17 Transect #9 OK Pin Point location N17143009 E1328959

Pick 11 Transect #10 OK Pin Point location N17142737 E1329012

Pick 18 Transect #10 OK Pin Point location N17142880 E1329012

Pick 52 Transect #10 OK Pin Point location N17143045 E1329015

Pick 70 Transect #11 OK Pin Point location N17143203 E1329063

Pick 44 Transect #11 OK Pin Point location N17143024 E1329059

Pick 57 Transect #12 OK Pin Point location N17143071 E1329112

Pick 27 Transect #12 OK Equipment malfunction-see below

Pick 26 Transect #12 OK Pin Point location N17142963 E1329117

Pick 48 Transect #13 OK Pin Point location N17143037 E1329161

Pick 33 Transect #13 OK Pin Point location N17142997 E1329163

Pick 31 Transect #13 OK Pin Point location N17142990 E1329165

Pick 25 Transect #13 OK Pin Point location N17142948 E1329161

TETRA TECH NUS, INC.

Pick 19 Transect #13 OK Pin Point location N17142881 E1329158

Pick 2 Transect #13 OK Equipment malfunction-see below

Pick 62 Transect #14 OK Pin Point location N17143118 E1329208

Pick 38 Transect #14 OK Equipment malfunction-see below

Pick 34 Transect #14 OK Pin Point location N17143003 E1329212

Pick 35 Transect #14 OK Pin Point location N17143005 E1329210

Pick 7 Transect #14 OK Pin Point location N17142521 E1329208

Pick 12 Transect #15 OK Pin Point location N17142758 E1329259

Pick 23 Transect #15 OK Pin Point location N17142899 E1329261

Pick 64 Transect #15 OK Pin Point location N17143131 E1329263

Pick 56 Transect #16 OK Pin Point location N17143075 E1329311

Pick 54 Transect #16 OK Pin Point location N17143060 E1329312

Pick 29 Transect #16 OK Pin Point location N17142969 E1329310

Equipment malfunction for picks 32, 17, 27, 2, and 38 these picks will revisited tomorrow 06/06/11. Equipment Issue: G858 magnetometer. Resolved by site Geophysicist).

15:30 Terminated all field activity

16:00 Secured for the day

TETRA TECH NUS, INC.

IMPORTANT PHONE CALLS/DECISIONS: N/A
FIELD TASK MODIFICATIONS: N/A
WEATHER CONDITIONS: Sunny. High 93F. Winds E@10-15mph
VISITORS ON SITE: N/A
PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Tory Smith, Frank Loney, Nick Brantley, Jim Coffman (Project Geophysicist)
SIGNATURE: Syd Rodgers **DATE:** 06/05/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	06/06/2011
SHEET 1 OF 4	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.255A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Trimble Hand held GPS unit, G858 Magnetometer, Schonstedt 52Cx

Site Preparation (including mobilization): N/A

Site Survey: N/A

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: Daily GPS data collection was logged at established locations, Data is included in Quality Control Daily Report

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date.

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: Anomaly Reacquisition, continues

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: No MEC/MPPEH recovered or transported today

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00 hrs, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

Flags were placed at 23 different Pick locations: 55,71,67,53,65,61,3,66,63,45,41,10,58,59,49,46,9,8,7,6,39,30,and 28

The picks selected today:

Pick 55 Transect #17 OK Pin Point location N17143059 E1329358

Pick 71 Transect #18 OK Pin Point location N17143209 E1329413

Pick 67 Transect #18 OK Pin Point location N17143181 E1329413

Pick 53 Transect #18 OK Pin Point location N17143060 E1329413

Pick 3 Transect #19 OK Pin Point location N17142522 E1329460

Pick 61 Transect #19 OK Pin Point location N17143113 E1329460

Pick 65 Transect #19 OK Pin Point location N17143137 E1329460

Pick 66 Transect #20 OK Pin Point location N17143169 E1329507

Pick 63 Transect #20 OK Pin Point location N17143113 E1329500

Pick 45 Transect #20 No Find – False Positive – Equipment tested and working properly. Replaced with anomaly (52) selected thru VSP.

Pick 41 Transect #20 No Find – False Positive. Equipment tested and working properly. Replaced with anomaly (68) selected thru VSP.

Pick 10 Transect #20 No Find – False Positive. Equipment tested and working properly. Replaced with anomaly (134) selected thru VSP.

Pick 58 Transect #21 OK Pin Point location N17143078 E1329561

Pick 59 Transect #22 OK Pin Point location N17143096 E1329607

Pick 49 Transect #22 OK Pin Point location N17143044 E1329615

Pick 46 Transect #22 OK Pin Point location N17143035 E1329609

Pick 9 Transect #23 OK Pin Point location N17142637 E1329660

Pick 8 Transect #23 OK Pin Point location N17142584 E1329664

Pick 7 Transect #23 OK Pin Point location N17142571 E1329660

Pick 6 Transect #23 OK Pin Point location N17142559 E1329665

Pick 39 Transect #24 OK Pin Point location N17143017 E1329714

Pick 30 Transect #24 OK Pin Point location N17142974 E1329712

Pick 28 Transect #24 OK Pin Point location N17142959 E1329713

Pick 16 Transect #12 OK Pin Point location N17142856 E1329114

Pick 32 Transect # 9 OK Pin Point location N17142991 E1328963

Pick 17 Transect # 9 OK Pin Point location N17142873 E1328966

Pick 27 Transect #12 OK Pin Point location N17142958 E1329114

Pick 2 Transect #13 OK Pin Point location N17142463 E1329163

Pick 38 Transect #14 OK Pin Point location N17143005 E1329213

Started purchasing Demo materials today, pallet of sand bags, plywood, will devote much of Thursday to Demo set up due to only having a 4 hour window to demil the stored items.

Mr. Jim Rossi on Site for pre Audit, prior to NOSSA Audit scheduled 06/07/11

Purchased materials, constructed an additional 4 road barriers at magazine location, (per suggestion of Mr. Jim Rossi) Stone Mountain, GA Office

Was contacted by Mr. Brian Syme (Navy RPM) he was in town to observe NOSSA Audit

Was contacted by Mr. Doug Murrey (NOSSA) Auditor, will meet the crew at 06:00 at assembly point 06/07/11, to start Site Audit

13:30 Terminated all field activities

TETRA TECH NUS, INC.

14:00 Secured for the day
IMPORTANT PHONE CALLS/DECISIONS: N/A
FIELD TASK MODIFICATIONS: N/A
WEATHER CONDITIONS: Sun in AM turning cloudy in PM. High 95F. Winds ESE@10-15mph
VISITORS ON SITE: Jim Rossi
PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Tory Smith, Frank Loney, Nick Brantley, Jim Coffman (Project Geophysicist)
SIGNATURE: Syd Rodgers **DATE:** 06/06/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	06/07/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX

SITE(s): MRP Incinerator Disposal Site

PROJECT NO: 112G01821

TASK CODES: 05.255A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Trimble Hand held GPS unit, G858 Magnetometer, Schonstedt 52Cx, White all metals detector

Site Preparation (including mobilization): N/A

Site Survey: N/A

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: Daily GPS data collection was logged at established locations, Data is included in Quality Control Daily Report

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date.

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: Continue Anomaly Reacquisition.

Anomaly Intrusive Investigation: Anomaly Intrusive Investigation Started Today

Demobilization: Jim Rossi

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: No MEC/MPPEH recovered or transported today

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00 hrs, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

Flags were placed at the last 3 pick locations: 78,76, and 77

Picks selected today:

Pick 78 Transect #20 OK Pin Point location N17142727 E1329165

Pick 77 Transect #20 OK Pin Point location N17142907 E1329108

Pick 76 Transect #20 OK Pin Point location N17142823 E1328861

For digs today see TARGET EXCAVATION FIELD TRACKING FORM 6/7/11 (attached)

A NOSSA Field Audit was conducted today by Mr. Douglas Murray, observations and finding will be published at a later date

13:30 Terminated all field activities

14:00 Secured for the day

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Sunshine with clouds mixed. High 92F. Winds SSE@15-25mph

VISITORS ON SITE: Jim Rossi(Tetra Tech), Douglas Murray (NOSSA)

SIGNATURE: Syd Rodgers **DATE:** 06/07/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	06/08/2011
SHEET 1 OF 4	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.255A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Trimble Hand held GPS unit, Schonstedt 52Cx, White's all metals detector

Site Preparation (including mobilization): N/A

Site Survey: N/A

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: Daily GPS data collection was logged at established locations, Data is included in Quality Control Daily Report

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date.

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: Continue Anomaly Intrusive investigation.

Demobilization: Jim Coffman Demobilized

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: MEC ACCOUNTABILITY LOG the MEC CUMULTIVE SUMMARY LOG and TARGET EXCAVATION TRACKING FORM items recovered and Transported today.

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00 hrs, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

Met with Mr. Gary Leflore (Navy POC) and issued the notification check sheet for signatures prior to Demo operations scheduled 6/10/11

Resumed Anomaly Intrusive Investigation, at approximately 08:30 the UXO Team started on Pick #317 on Transect #5, they recovered multiple ordnance items at the flag then began widening the excavation due to contacts out to the side of the initial dig. The average depth of anomalies was between 4 and 8 inches. The excavation continued to widen until it combined into Pick #299 on the same Transect, the team continued locating ordnance. This is an obvious burial pit for ordnance and ordnance related components. The width of each excavation is approximately 5 feet. After discussion with the UXO Site Manager we were instructed to stop investigating anomalies at Pick #317 and #299 until a decision could be made as to what further extent if any Pick #317 and Pick #299 will be investigated.

The size of the pit is approximately 4' wide and approximately 16' long.

13:00 Terminated digging activities on Picks #317 and #299, placed caution tape around the open excavation and transported the MEC items to the Storage Magazine and the MDAS to the MDAS storage container. Tools and equipment was put away and GPS Points were taken.

Ordnance taken from these two points thus far equal:

106 ea MK-23 Practice Bombs

300 ea 20 mm TP Projectiles

5 ea 2.75 inch Rocket War Heads

12 ea 2.25" Rocket Motor Pieces and Parts

21 ea 2.25 Rocket Motor Venturi's

4 ea 2.75 Rocket Motor Fins

30 ea Mk 23 Practice Bomb Pieces and Parts

14:00 Secured for the day

TETRA TECH NUS, INC.

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Plenty of sunshine. High 92F.Winds SSE@15-25mph

VISITORS ON SITE: Gary Leflore (Navy POC)

PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Tory Smith, Frank Loney, Nick Brantley

SIGNATURE: Syd Rodgers **DATE:** 06/08/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	06/09/2011
SHEET 1 OF 4	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.255A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Trimble Hand held GPS unit, Schonstedt 52Cx

Site Preparation (including mobilization): N/A

Site Survey: N/A

Vegetation Management: Cleared growth around demolition area.

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: Daily GPS data collection was logged at established locations, Data is included in Quality Control Daily Report

MEC Management Treatment/Disposal: Prepared for Demolition Operations,

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date.

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: Continued Intrusive Investigation.

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: No MEC/MPPEH was recovered today, see TARGET EXCAVATION FIELD TRCKING FORM for MDAS recovered today.

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00 hrs, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

Enlarged the Demo Site the Fire Department will have to wet down. Dug holes to place ordnance in during Demo operations

Anomaly Intrusive Investigation resumed, 12 Picks were dug today: 147, 328, 75, 285, 274, 115, 117, 108, 52, 251, 213, and 98.

No MEC/MPPEH was recovered today although burn/burial pit on Transect #7 was encountered, Pick #328, that produced 9ea 20 mm Projectiles, The team went out approximately 36" from the flag to a depth of 24". Transect #7 is within the landfill boundaries and IAW with the SAP we stop digging at 2". The excavation was inspected by QC and passed noting that at the perimeter of the excavation other anomalies were present.

All remaining MDAS recovered on 6/8/11 was certified and secured in the MDAS Container.

Mr. Gary Leflore (Navy POC) came to the Site today with his assistant to give me the sign off page as required IAW the Blow-in-Place Activities Notification Plan, notifying all personnel of Demolition Operations scheduled on 6/10/11. At his request we showed him the excavations of the Burial Pit; he seemed impressed that so many ordnance items were recovered from such a shallow excavation so close to perimeter road.

13:30 Terminated Field activities to perform maintenance on tools and equipment

14:00 UXO Team secured for the day

SUXOS and UXOQC/SAFETY OFFICER stayed behind to certify MDAS going into MDAS container. When completed the container was again secured and resealed with tamper proof seal.

All efforts on 6/10/11 will be directed towards Demolition Operations; very little if any picks will be investigated.

TETRA TECH NUS, INC.

IMPORTANT PHONE CALLS/DECISIONS: N/A	
FIELD TASK MODIFICATIONS: N/A	
WEATHER CONDITIONS: Plenty of sunshine. High 92F. Winds SE@15-25mph	
VISITORS ON SITE: N/A	
PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Tory Smith, Frank Loney, Nick Brantley	
SIGNATURE: Syd Rodgers	**DATE:** 06/09/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	06/10/2011
SHEET 1 OF 4	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.255A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Trimble Hand held GPS unit, Schonstedt 52Cx

Site Preparation (including mobilization): N/A

Site Survey: N/A

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: Daily GPS data collection was logged at established locations, Data is included in Quality Control Daily Report

MEC Management Treatment/Disposal: Demolition Operations

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date.

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: Continued while waiting for Explosive Delivery

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: No MEC/MPPEH was recovered today

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00 hrs, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

Today's main objective was for Demolition Operations on MEC that was recovered during the Detector aided Surface Survey and Anomaly Intrusive Investigations.

After arriving at the Site the first thing that was accomplished was to completely set up the separate shots (minus the donor charges) that were approved by the SUXOS.

When we received our Explosive Delivery the donor charges were placed on each item to be treated as discussed with the SUXOS and Safety Officer earlier.

At approximately 13:00 The Demolition Supervisor (Bob Shauger) gave a Demolition Briefing to the entire crew, Detailing how the separate shots would be set up, assigning individual responsibilities, and road guard responsibilities.

Approximately 14:00 hrs Mr. Gary Leflore (Navy POC) and Chris Chemiss (Public Works Environmental) arrived on site to assist in the demolition operations as road guards.

The NAS Fire Department arrived at approximately 14:30 to wet down the area to reduce the possibility of fire during the detonations.

With the area now wet enough the Demo Supervisor requested permission from the SUXOS to prime the shots. Permission was granted, and Demo Operations were underway.

Five individual shots were set up, some with branch lines to accommodate more targets

Items attacked during this operation were:

11ea 2.75" M151 War Heads

15ea Mk 23 Practice Bombs

1 ea CAD

2ea 3.5" Rocket Motors

All shots functioned as designed but with varied results.

The 2.75" Rocket War Heads were successful

TETRA TECH NUS, INC.

The Mk 23 Practice Bombs for the most part were successful. Several practice bombs were not penetrated due to consolidation. They will be included in the next scheduled demo operation.

The CAD was successful

The 3.5” Rocket Motors was unsuccessful. The motors were wrapped with 100 grain Det cord in an attempt to vent them, but the Det Cord was not powerful to cut them. In another attempt I suggested to the Site Manager, I would like to try flex linier shaped charges to cut them. The bombs are mostly heavy cast metal with a small cavity for a spotting charge that makes them hard to destroy.

While waiting for our Explosive Delivery the UXO Team was also able to investigate more anomaly Picks. The Picks that were dug today:

330, 102, 43, 289, 90, 134, 161, 365, 158, 305, 234, 205, 149 and 105

15:15 Team inspected the Demo shot holes

15:30 Demo materials were picked up and disposed of.

16:30 The Team departed for the day.

The first part of tomorrow will be sifting through the rubble, disposing of trash, putting MDAS material in the proper container and any items that need further demil action will be transported to the MEC Storage Locker.

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Sunny. High 82F. Winds SSE@15-25mph

TETRA TECH NUS, INC.

VISITORS ON SITE: Mr. Gary Leflore (Navy POC) and Chris Chemiss (Public Works Environmental), NAS Fire Department as Demolition Support Personnel	
PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Tory Smith, Frank Loney, Nick Brantley	
SIGNATURE: Syd Rodgers	**DATE:** 06/10/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	06/11/2011
SHEET 1 OF 4	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.255A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Trimble Hand held GPS unit, Schonstedt 52Cx

Site Preparation (including mobilization): N/A

Site Survey: N/A

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: Daily GPS data collection was logged at established locations, Data is included in Quality Control Daily Report

MEC Management Treatment/Disposal: Clean up after Demolition Operations

MPPEH Management and Certification: Inspect results of Demolition Operations and classify residue

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date.

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: N/A

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: No MEC/MPPEH was recovered today

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00 hrs, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

No Picks were dug today

The AM hours was spent cleaning up the Demolition Site, while inspecting the remains for hazardous residue, then classify the residue into MEC/MPPEH,MDAS, and transporting materials to the appropriate container.

Conducted a 100% inventory of the MEC Storage Magazine, as of this date there is 104 items waiting treatment

Conducted a 100% inventory of the MDAS container, and added 30 lbs of metal scrap from the Demo Shot Holes

13:30 Terminated all field activities

14:00 Secured for the day

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Abundant sunshine. High 92F. Winds SE@15-25mph

VISITORS ON SITE: N/A

PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Tory Smith, Frank Loney, Nick Brantley

SIGNATURE: Syd Rodgers **DATE:** 06/11/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	06/13/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX

SITE(s): MRP Incinerator Disposal Site

PROJECT NO: 112G01821

TASK CODES: 05.255A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Trimble Hand held GPS unit, Schonstedt 52Cx, White all metals detector

Site Preparation (including mobilization): N/A

Site Survey: N/A

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: Daily GPS data collection was logged at established locations, Data is included in Quality Control Daily Report

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date.

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: N/A

Anomaly Intrusive Investigation: Anomaly Intrusive Investigation Continues

Demobilization: N/A

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: No MEC/MPPEH recovered or transported today

DATE	06/12/2011
SHEET 2 OF 2	

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 06:00 hrs, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

UXO Team Anomaly Digs completed today: 354,339,181,349,456,335,437,412,452,420,297,296,376,391,306,297,270,189, and 169 (20 Total).

All Anomaly Intrusive Investigations are complete at this time (75 Total).

For all Digs see TARGET EXCAVATION FIELD TRACKING FORM 6/13/11 (attached)

13:30 Terminated all field activities

14:00 Secured for the day

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Sunshine with clouds mixed. High 91F. Winds SE@ 18 mph.

VISITORS ON SITE: N/A

SIGNATURE: Robert Shauger **DATE:** 06/13/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	06/16/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.255A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Trimble Hand held GPS unit, Schonstedt 52Cx

Site Preparation (including mobilization): N/A

Site Survey: N/A

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: Daily GPS data collection was logged at established locations, Data is included in Quality Control Daily Report

MEC Management Treatment/Disposal: Preparation for Demolition Operations

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date.

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: Four additional points were visited today

Anomaly Intrusive Investigation: Four additional points were visited and dug, for results see MEC accountability log

Demobilization: Frank Loney Demobilized 6/15/11

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: See MEC accountability log for items encountered

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 09:00 hrs, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

Team came off break early this shift, four additional points have been selected as digs in the MEC area.

Preparation will start today for Demo Operations scheduled for 06/17/11

Materials and explosives required for demo operations will be delivered early 6/17/11, Fire Department at Cabaniss Field has been notified and will respond at 13:00hrs to wet down the area and stand by for possible fires.

After closer evaluation 9 additional items from the MEC Storage locker were placed in the MDAS Container

Items recovered from the additional digs will be treated with explosives on our scheduled demo day.

16:30 Terminated all field activities

17:00 Secured for the day

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Mix of clouds and sun. Heat index near 105. High 95F. Winds SSE@20-30mph

VISITORS ON SITE: N/A

PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Tory Smith, Nick Brantley

SIGNATURE: Syd Rodgers **DATE:** 06/16/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

DATE	06/17/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.255A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Trimble Hand held GPS unit, Schonstedt 52Cx

Site Preparation (including mobilization): N/A

Site Survey: N/A

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: Daily GPS data collection was logged at established locations, Data is included in Quality Control Daily Report

MEC Management Treatment/Disposal: Demolition Operations

MPPEH Management and Certification: N/A

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date.

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: Four additional points were visited today

Anomaly Intrusive Investigation: Four additional points were visited and dug, for results see MEC accountability log

Demobilization: Today is Bob Shauger's last day

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: No MEC/MPPEH was recovered today

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 08:00 hrs, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

Today was devoted to Demolition Operations, Receiving explosives and Sand Bags, setting up the different shots, constructing engineering controls to reduce Frag, and finally igniting the charges.

The NAS Fire Department arrived at approximately 14:00 hours to wet down the Demo area with their equipment and stand by until the operation was completed

Three separate shots was set up and three shots were detonated, all went well, and initially it appears that all the items that were attacked were demilled as desired.

Tomorrow will be spent on final inspection of the residue, to insure no hazards remain.

Today is the last day of work for the Team Leader (Bob Shauger)

UXO Tech I and Tech II will Demobilize on 6/19/11

17:30 Terminated all field activities

18:00 Secured for the day

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Plenty of sunshine. Hot. Heat index near 110F. High 96F. Winds SSE@20-30mph

VISITORS ON SITE: Gary Leflore (Navy POC) and Chris Cherniss (Navy Environmental)

PERSONNEL ON SITE: Syd Rodgers, Bob Shauger, Pete Dummit, Tory Smith, Nick Brantley

SIGNATURE: Syd Rodgers **DATE:** 06/17/11

TETRA TECH NUS, INC.

MEC FIELD ACTIVITY DAILY LOG

ATE	06/18/2011
SHEET 1 OF 2	

FACILITY NAME: NALF Cabaniss, Corpus Christi, TX **SITE(s)**: MRP Incinerator Disposal Site	**PROJECT NO**: 112G01821 **TASK CODES**: 05.255A

FIELD ACTIVITY SUBJECT: Munitions and Explosives of Concern Remedial Investigation

SUMMARY OF DAILY PROGRESS:

Instruments Used: Trimble Hand held GPS unit, Schonstedt 52Cx

Site Preparation (including mobilization): N/A

Site Survey: N/A

Vegetation Management: N/A

Detector Aided Surface Survey - Transect: N/A

GPS Positional Data: Daily GPS data collection was logged at established locations, Data is included in Quality Control Daily Report

MEC Management Treatment/Disposal: N/A

MPPEH Management and Certification: Clean up Demolition Site and Certify residue

Geophysical Equipment Calibration, Maintenance, Testing and Inspection: N/A

IVS: An AM and PM operational check was completed on all instruments used this date.

Geophysical Data Collection: N/A

Geophysical Data Processing and Interpretation: N/A

Anomaly Reacquisition: One additional dig point was issued

Anomaly Intrusive Investigation: Dug the additional Point

Demobilization: Tory Smith and Nick Brantly will demobilize 6/19/11

Site Specific Final Report Preparation And Approval: N/A

DOCUMENTATION OF MEC/MPPEH ENCOUNTERED: no MEC/MPPEH was recovered today

TETRA TECH NUS, INC.

DESCRIPTION OF DAILY ACTIVITIES AND EVENT:

Arrived on Site at 07:00 hrs, Safety Officer Conducted daily safety briefing; SUXOS outlined work to be accomplished today.

Cleaned up the Demolition Pits, sifted through the site looking for residue from several shots, only bits and pieces could be found, no hazardous materials remained. Collected approximately 75 lbs of demolition residue (scrap metal) that was deposited into the MDAS Container waiting shipment off site.

Investigated the last selected Pick, Pick #173, no ordnance related materials was recovered (scrap metal)

Waiting for further instructions on shipment of tools and equipment back to Tetra Tech, Local venders and MDAS Container to its final destination.

The UXO RI field effort is now complete

SUXOS and Safety Officer will remain on site to assist (UXO escort) the soil sampling team in their sampling efforts, starting 6/20/11

11:00 Terminated all field activities

12:00 Secured for the day

IMPORTANT PHONE CALLS/DECISIONS: N/A

FIELD TASK MODIFICATIONS: N/A

WEATHER CONDITIONS: Partly cloudy. Hot. Heat index near 110F again. High 97F. Winds SSE@20-30mph

VISITORS ON SITE: N/A

PERSONNEL ON SITE: Syd Rodgers, Pete Dummit, Tory Smith, Nick Brantley

SIGNATURE: Syd Rodgers **DATE:** 06/18/11

CABANISS AIRFIELD CENSUS SURVEY **Survey Location: Quadrant/Station No.: _Incineration Area** **Page 1 of 2**

Date 4/27/11 ***Time Begin 0755 hr*** ***Time End 1130 hr*** ***Begin Temp: 75 F*** ***Observer Names: Smiley Nava and Bob Cawthern***

Date 4/28/1 ***Time Begin 0800 hr*** ***Time End 1200 hr*** ***BeginTemp_ 81 F*** ***Observer Names: Teresa Carrillo and Smiley Nava***

Wind Direction_ESE both days Wind Speed: 5 to 20 mph (day 1); 0 to 10 (day 2) _Other Climatological Data: Skies clear to partly cloudy_

Common Name	Activity/Behavior Observed*	Nesting: Yes/No	Nest GPS: Latitude	Nest GPS: Longitude	Counts / Comments:
Black-bellied whistling Duck	Overhead flight	N			25
Barn Swallow	Overhead flight	N			50-100
Northern Rough Wing swallow	Overhead flight	N			50-100
White-winged Dove	Overhead flight	N			25-50
Northern Mockingbird		N			10
Painted Bunting		N			2
Long-billed Thrasher		N			4+
Northern Cardinal		N			40-50
Unidentified warbler sp. I		N			1
Laughing Gull	Overhead flight	N			40-50
Eastern Phoebe		N			1-2
Chestnut-sided Warbler		N			2
Green Heron		N			4
Unidentified warbler sp. II		N			2
Mourning Dove		N			20-25
European Starling		N			1
Unidentified Blackbird		N			1
Carolina Wren		N			1
Unidentified Warbler sp. III		N			1
Yellow-billed Cuckoo		N			1
Brown-headed Cowbird		N			10
Chimney Swift		N			30-50
Turkey Vulture	Overhead flight	N			8
Lincoln's Sparrow		N			2
Vesper Sparrow		N			1
Pippits		N			6
Broad-winged Hawk		N			2
Northern Harrier	Overhead flight	N			1

__CABANISS AIRFIELD CENSUS SURVEY__ **Survey Location: Quadrant/Station No.: _Incineration Area Page 2 of 2**

Date 4/27/11 ***Time Begin 0755 hr*** ***Time End 1130 hr*** ***Begin Temp: 75 F*** ***Observer Names: Smiley Nava and Bob Cawthern***

Date 4/28/1 ***Time Begin 0800 hr*** ***Time End 1200 hr*** ***BeginTemp_ 81 F*** ***Observer Names: Teresa Carrillo and Smiley Nava***

Wind Direction_ESE both days Wind Speed: 5 to 20 mph (day 1); 0 to 10 (day 2)_Other Climatological Data: Skies clear to partly cloudy_

Common Name	Activity/Behavior Observed*	Nesting: Yes/No	Nest GPS: Latitude	Nest GPS: Longitude	Counts / Comments:
Magnolia Warbler		N			1
Tennessee Warbler		N			1
Chuck-will's-widow		N			2
Anhinga		N			2
Bell's Vireo		N			1
Unidentified Sparrow sp. I		N			1
Baltimore Oriole		N			1
Bewick's Wren		N			1
Orchard Oriole		N			1
Roseate Spoonbill	Overhead flight	N			2
[Swamp] Sparrow		N			1
Ruby-Throated Hummingbird		N			1
White-eyed Vireo		N			2
Unidentified Poorwill		N			1
Great Crested Kingbird		N			1
UnidentifiedTern		N			1
Nashville Warbler		N			1
Double-crested Cormorant	Overhead flight	N			2
Rock Dove	Overhead flight	N			1
Lesser Night Hawk		N			1
Great Egret	Overhead flight	N			1
Nest 1.					Between K14-J14 in spiny hackberry tree
Nest 2.					3 meters west & 2 meters north of M16 in spiny hackberry tree
Nest 3.					P16 in spiny hackberry tree
*No designation = in brush, ~perching or	Scavenging.				

CABANISS AIRFIELD CENSUS SURVEY **Survey Location: Rows 0 through 13**

Date 5/9/11 ***Time Begin 0720 hrs*** ***Time End 1145 hrs*** ***Begin Temp: 77 F*** ***Observer Names: Smiley Nava***

Wind Direction_SSE_ Wind Speed: 15 to 35 mph Other Climatological Data: Skies partly cloudy

Common Name	Activity/Behavior Observed*	Nesting: Yes/No	Nest GPS: Latitude	Nest GPS: Longitude	Comments: Number = birds seen/heard
Black-bellied whistling Duck	Overhead flight	N			25
Barn Swallow	Overhead flight	N			25-40
Northern Rough Wing swallow	Overhead flight	N			20
White-winged Dove	Overhead flight	N			50 to 75
Northern Mockingbird		N			12
Northern Cardinal		N			11
Unidentified warbler sp. I		N			1
Laughing Gull	Overhead flight	N			50 to 75
Eastern Phoebe		N			1
Chestnut-sided Warbler		N			1
Unidentified warbler sp. II		N			1
Mourning Dove	Overhead flight	N			20
European Starling		N			5
Brown-headed Cowbird		N			4
Chimney Swift	Overhead flight	N			15 to20
Turkey Vulture	Overhead flight	N			6
Inca Dove		N			2
Northern Harrier	Overhead flight	N			1
Chuck-will's-widow		N			1
Anhinga	Overhead flight	N			1
Catbird		N			1
Roseate Spoonbill	Overhead flight	N			1
Unidentified hummingbird #1	Overhead flight	N			1
Great Crested Kingbird		N			1
Double-crested Cormorant	Overhead flight	N			20
Great Blue Heron	Overhead flight	N			1
Purple Martin	Overhead flight	N			16
Unidentified Night Jar		N			1
Great Blue Heron	Overhead flight	N			1
Coopers Hawk	Over head flight	N			1
Savannah Sparrow		N			1

CABANISS AIRFIELD CENSUS SURVEY **Survey Location: Rows 0 through 13**

Date 5/9/11 ***Time Begin 0720 hrs*** ***Time End 1145 hrs*** ***Begin Temp: 77 F*** ***Observer Names: Smiley Nava***

Wind Direction SSE Wind Speed: 15 to 35 mph Other Climatological Data: Skies partly cloudy

Common Name	Activity/Behavior Observed*	Nesting: Yes/No	Nest GPS: Latitude	Nest GPS: Longitude	Comments: Number = birds seen/heard
Nest 1		No activity			Between K14-J14 - no bird in nest and no eggs when inspected : Nest Removed
Nest 2.		No activity			3 meters East & 2 meters North of P16 in spiny hackberry tree – No bird in nest and no eggs : Nest Removed
Nest 3.		No activity			P16 in spiny hackberry tree – nest not found in previous observed site – suspect blown away due to high winds
New Nest #4		No activity			Between K12 and J12 - no bird in nest and no eggs when inspected : Nest Removed

*No designation = in brush, perching or scavenging (feeding)

CABANISS AIRFIELD CENSUS SURVEY **Survey Location: Rows 14 through 24**

Date 5/12/111 ***Time Begin 0720 hrs*** ***Time End 1050 hrs*** ***Begin Temp: 71 F*** ***Observer Name: Smiley Nava***

Wind Direction_SSE_ Wind Speed: 0 to 5 mph Other Climatological Data: Skies overcaset – Heavy rains (~2 in) previous day

Common Name	**Activity/Behavior Observed***	**Nesting: Yes/No**	**Nest GPS: Latitude**	**Nest GPS: Longitude**	**Comments: Number = birds seen/heard**
Black-bellied Whistling Duck	Overhead flight	N			5
Barn Swallow	Overhead flight	N			30-50
Northern Rough Wing Wallow	Overhead flight	N			20-30
White-winged Dove	Overhead flight	N			50 to 75 – most were flying overhead
Northern Mockingbird		N			8
Northern Cardinal		N			14
Unidentified warbler sp. I		N			2
Laughing Gull	Overhead flight	N			50 to 75
Eastern Phoebe		N			3
Unidentified warbler sp. II		N			1
Mourning Dove	Overhead flight	N			10-15
Scissortail Flycatcher		N			1
Unidentified Orioles		N			6
Chimney Swift	Overhead flight	N			30-50
Turkey Vulture	Overhead flight	N			4
Groove Billed Ani		N			2
Golden Fronted Woodpecker		N			3
Shovelers -2	Overhead flight	N			2
Purple Martin	Overhead flight	N			15 to 20
Tennessee Warbler		N			1
Green Heron		N			1
American Redstart		N			1
Magnolia Warbler		N			1
Double-crested Cormorant		N			9
White Eyed Vireo		N			1
Purple Martin	Overhead flight	N			15-20
One large nest found in Hackberrry tree		N	Btwn M-16-	P-16	Examined 5/13/11: Nest Not Active

*No designation = in brush, perching or scavenging (feeding)

CABANISS AIRFIELD CENSUS SURVEY **Survey Location: Rows 1 through 24** **Page 1 of 1**

Date 5/21/2011 ***Time Begin 0720 hrs*** ***Time End 1252 hrs*** ***Begin Temp: 78 F*** ***Observer Name: Smiley Nava***

Wind Direction_SSE_ Wind Speed: 5 to 10 mph Other Climatological Data: Skies overcaset – Cloudy to Partly Cloudy

Common Name	Activity/Behavior Observed*	Nesting: Yes/No	Nest GPS: Latitude	Nest GPS: Longitude	Comments: Number = birds seen/heard
Black-bellied Whistling Duck	Overhead flight	N			2
Barn Swallow	Overhead flight	N			5-10
Northern Rough Wing Wallow	Overhead flight	N			5-10
White-winged Dove	Overhead flight	N			20-30
Northern Mockingbird		N			3
Northern Cardinal		N			17
White-faced Ibis	Overhead flight	N			2
Laughing Gull	Overhead flight	N			40-50
Eastern Phoebe		N			3
Kiskeedee Flycatcher		N			1
Mourning Dove	Overhead flight	N			20
Yellow-billed Cuckoo		N			2
Purple Martin		N			1
Chimney Swift	Overhead flight	N			10
Turkey Vulture	Overhead flight	N			2
Couch’s Kingbird		N			1
Unidentified Tern	Overhead flight	N			1
Shovelers	Overhead flight	N			2
Purple Martin	Overhead flight	N			1
Common Night Hawk		N			2
Green Heron		N			2
Great Egret	Overhead flight	N			2
Yellow-rumped Warbler		N			1
Double-crested Cormorant	Overhead flight	N			4
White Eyed Vireo		N			1
Great-crested Kingbird		N			1
Cowbird	Overhead flight	N			3
Great-tailed Grackle	Overhead flight	N			5
White-winged Dove	Overhead flight	N			20-25
Eastern Phoebe		N			2
Broad-winged Hawk	Overhead flight	N			1

CABANISS AIRFIELD CENSUS SURVEY **Survey Location: Rows 1 through 24** **Page 1 of 1**

Date 6/04/2011 ***Time Begin 0805 hrs*** ***Time End 1230 hrs*** ***Begin Temp: 80 F*** ***Observer Name: Smiley Nava***

Wind Direction SSE Wind Speed: 5 to 10 mph Other Climatological Data: Sunny, Clear skies

Common Name	**Activity/Behavior Observed**	**Nesting: Yes/No**	**Nest GPS: Latitude**	**Nest GPS: Longitude**	**Comments: Number = birds seen/heard**
Barn Swallow	Overhead flight	N			2
White-winged Dove	Overhead flight	N			6
Northern Cardinal		N			22
Laughing Gull	Overhead flight	N			25
Brewers Cowbird		N			2
Mourning Dove	Overhead flight	N			6
Chimney Swift	Overhead flight	N			7
Turkey Vulture	Overhead flight	N			1
White-eyed Vireo		N			1
Purple Martin	Overhead flight	N			1
Green Heron		N			1
Great Blue Heron	Overhead flight	N			1
Brown-headed Cowbird	Overhead flight	N			1
Great-tailed Grackle	Overhead flight	N			1
White-winged Dove	Overhead flight	N			6

Appendix B-2
Inspection and QC Reports

PREPARATORY PHASE INSPECTION REPORT

Project Name:	NALF Cabaniss	Project No:	112G01821	Report No:	01
UXO Team:		Location:	Corpus Christi, TX	Date:	01/12/11

I. Definable Feature of Work

☒ Mobilization/Site Preparation	☒ MEC Management (Treat/Disposal)	☐ Geo Data Proc. And Interpretation
☒ Site Survey	☒ MPPEH Management (Cert)	☐ Anomaly Reacquisition
☒ Vegetation Management	☐ Geo Equipment	☐ Anomaly Intrusive Investigation
☒ Detector Aided Surface Survey	☐ Instrument Verification Strip	☐ Demobilization
☒ GPS Positional Data	☐ Geo Data Collection	☐ Site-Specific Final Report

II. References (DOD Inst., Corporate references, SOPs, etc.):

UFP-SAP (DFWs found on worksheets No. 12 and No. 14), and the HASP

III. Personnel Present (employees performing the work) Attach supplemental sheet if necessary

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Jacob Clement	Tech III	Tetra Tech NUS
Shaun Woods	Tech II	Tetra Tech NUS
Norm Piper	Tech I	Tetra Tech NUS
Fred Grosskoff	FOL	Tetra Tech NUS
Paul Supak	Supervisor	Gainco
Abe Nimroozi	Supervisor	Gainco
Martin Zapata	Labor	Gainco
Jesus Garcia	Labor	Gainco
Dan Davila	Labor	Gainco
Rene Hernandez	Labor	Gainco
Ermilo Navarro	Surveyor	Gainco
Vicente Gonzalez	Labor	Gainco
Johnny Aleman	Labor	Gainco
Marcos Marcelino	Labor	Gainco

IV. Submittals Reviewed (Work Plan, EHSP, Permits, etc.)

Submittals Reviewed.	Item No.	Date	Approval Authority
HASP	1	March 2010	Matthew M. Soltis
UFP-SAP	2	October 2010	Michael Green
ESSDR	3	January 2011	Tammy K. Schirf

Have all submittals been approved? ☐ Yes ☒ No

If No, what items have not been submitted/ approved? ESS has not been approved needs some minor changes. Is submitted.

PREPARATORY PHASE INSPECTION REPORT

Project Name:	NALF Cabaniss	Project No:	112G01821	Report No:	01
UXO Team:		Location:	Corpus Christi, TX	Date:	01/12/11

Are all submittals on hand?	☐ Yes	☒ No
If No, what items are missing? ESS		
Check approved submittals against delivered material. (This should be done as material arrives.)		
Comments:		
V. Resources (Personnel & Equipment)		
Are adequate resources on hand to effectively conduct work?	☒ Yes	☐ No
If No, what action will be taken?		
VI. Procedures (Project Manger should be involved in this stage of the inspection)		
Review contract specifications. (List special requirements such as location accuracy, format for deliverables, etc.)		
Discuss procedure for accomplishing the work (Reference WP Section or SOP).		
Clarify any differences (revisions needed).		
VII. Resolve Differences (What did you do to resolve outstanding issues/problems)		
Comments:		
VIII. Testing/ Surveillance		
Identify Tests/ Surveillance to be performed, frequency, and by whom. The team will check instruments to be used that day.		
Where will the testing to take place (in the test bed, at a selected monument, etc.)?		
Is the Testing/ Surveillance Plan Adequate?		

PREPARATORY PHASE INSPECTION REPORT

Project Name:	NALF Cabaniss	Project No:	112G01821	Report No:	01
UXO Team:		Location:	Corpus Christi, TX	Date:	01/12/11

IX. Safety

Review applicable portion of the Health and Safety Plan.

Has the Activity Hazard Analysis been approved? ☒ Yes ☐ No

X. Results of Inspection

☒ Acceptable ☐ Unacceptable		NCR #:
Name: Peter Dummitt	Signature:	Date: 01/12/11

QCM Comments

QCM Review

☐ Concur	☐ Non-Concur	Signature:	Date

XI. Distribution

☒ PM ☒ UXO Project MGR ☒ UXOSO/QC ☒ SUXOS ☐ CLIENT REP

Revised 4/27/2005

INITIAL PHASE INSPECTION REPORT

Project Name: NALF Cabaniss Report No: 01

Project No: 112G01821 Location: Corpus Christi, TX Date: 01/12/11

I. Definable Feature of Work

- ☒ Mobilization/Site Preparation
- ☒ Site Survey
- ☒ Vegetation Management
- ☒ Detector Aided Surface Survey
- ☒ GPS Positional Data
- ☒ MEC Management (Treat/Disposal)
- ☒ MPPEH Management (Cert)
- ☐ Geo Equipment
- ☐ Instrument Verification Strip
- ☐ Geo Data Collection
- ☐ Geo Data Proc. And Interpretation
- ☐ Anomaly Reacquisition
- ☐ Anomaly Intrusive Investigation
- ☐ Demobilization
- ☐ Site-Specific Final Report

II. References (DOD Inst, Corporate references, SOPs, etc.):

UFP-SAP worksheet No. 12, No. 14, No. 17
HASP

III. Personnel Present (employees performing the work) Attach supplemental sheet if necessary

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Jacob Clement	Tech III	Tetra Tech NUS
Shaun Woods	Tech II	Tetra Tech NUS
Norm Piper	Tech I	Tetra Tech NUS
Fred Grosskoff	FOL	Tetra Tech NUS
Paul Supak	Supervisor	Gainco
Abe Nimroozi	Supervisor	Gainco
Martin Zapata	Labor	Gainco
Jesus Garcia	Labor	Gainco
Dan Davila	Labor	Gainco
Rene Hernandez	Labor	Gainco
Ermilo Navarro	Surveyor	Gainco
Vicente Gonzalez	Labor	Gainco
Johnny Aleman	Labor	Gainco
Marcos Marcelino	Labor	Gainco

IV. Preparatory Work (equipment set up & testing, EZ set up, logbook entries, etc.)

Is preliminary work complete and correct? ☒ Yes ☐ No

If No, what action(s) will be taken? Equipment required not on site, equipment being ordered

INITIAL PHASE INSPECTION REPORT

Project Name: NALF Cabaniss Report No: 01

Project No: 112G01821 Location: Corpus Christi, TX Date: 01/12/11

V. Task Execution

Is work being completed in accordance with plans and specifications?	☒ Yes	☐ No
If No, what corrective action(s) will be taken?		
Is workmanship acceptable?	☒ Yes	☐ No
If No, what action(s) will be taken?		

V. Resolve Differences

Comments:

VI. Safety (Review work conditions using HASP and AHAs)

Comments: Appropriate PPE worn and safety precautions taken.

VII. Results of Inspection

☒ Acceptable	☐ Unacceptable	NCR #:
Name: Peter Dummitt	Signature:	Date:01/12/11

QC Manager Comments

INITIAL PHASE INSPECTION REPORT

Project Name: NALF Cabaniss   Report No: 01

Project No: 112G01821   Location: Corpus Christi, TX   Date: 01/12/11

QC Manager Review

☐ Concur	☐ Non-Concur	Signature:	Date

VIII. Distribution

☒ PM   ☒ UXO Project MGR   ☒ UXOS/QC   ☒ SUXOS   ☐ CLIENT REP

Revised May 2006

FOLLOW-UP INSPECTION/SURVEILLANCE REPORT

Project Name: NALF Cabaniss | Report No: 01
Project No: 112G01821 | Location: Corpus Christi, TX | Date: 1/12/2011

I. Definable Feature of Work

☐ Mobilization/Site Preparation	☐ MEC Management (Treat/Disposal)	☐ Geo Data Proc. And Interpretation
☒ Site Survey	☐ MPPEH Management (Cert)	☐ Anomaly Reacquisition
☒ Vegetation Management	☐ Geo Equipment	☐ Anomaly Intrusive Investigation
☐ Detector Aided Surface Survey	☐ Instrument Verification Strip	☐ Demobilization
☒ GPS Positional Data	☐ Geo Data Collection	☐ Site-Specific Final Report

II. Type of Inspection

☒ Follow-up ☒ Surveilllance

II. References (DOD Inst, Corporate references, SOPs, etc.):

UFP-SAP worksheet No. 12, No. 14

III. Activities/Conditions Observed

Read over Work Plan, HASP, ESS. Check out work site, Set in (2) control points

Conducted By: Peter Dummitt | Signature: | Date:

X. UXOSO/QC Review

☒ Acceptable ☐ Unacceptable | NCR #:

Comments: No discrepancies Noted

Name: | Signature: | Date:

XI. Distribution

☒ PM ☒ SUXOS ☒ UXOSO/QC ☒ UXO Program Manager ☐ Client Rep

FOLLOW-UP INSPECTION/SURVEILLANCE REPORT

Project Name: NALF Cabaniss   Report No: 02

Project No: 112G01821   Location: Corpus Christi, TX   Date: 1/12/2011

I. Definable Feature of Work

☐ Mobilization/Site Preparation	☐ MEC Management (Treat/Disposal)	☐ Geo Data Proc. And Interpretation
☒ Site Survey	☐ MPPEH Management (Cert)	☐ Anomaly Reacquisition
☒ Vegetation Management	☐ Geo Equipment	☐ Anomaly Intrusive Investigation
☐ Detector Aided Surface Survey	☐ Instrument Verification Strip	☐ Demobilization
☐ GPS Positional Data	☐ Geo Data Collection	☐ Site-Specific Final Report

II. Type of Inspection

☒ Follow-up   ☒ Surveilllance

II. References (DOD Inst, Corporate references, SOPs, etc.):

UFP-SAP worksheet No. 12

III. Activities/Conditions Observed

Survey of transects 1, 2, 3, 4, 5 and 24 and mark for brush crew. Brush crew cut Transects 1, 2, 24 and 50% of 3. Suspect MEC/MPPEH items found on transect 4 through 8 along Perimeter Road to about 70 to 100 feet South of the road. Area marked. Work moved the East side of the site.

Conducted By: Peter Dummitt	Signature:	Date:1/12/2011

X. UXOSO/QC Review

☐ Acceptable   ☐ Unacceptable   NCR #:

Comments: No discrepancies Noted

Name:	Signature:	Date:

XI. Distribution

☒ PM   ☒ SUXOS   ☒ UXOSO/QC   ☒ UXO Program Manager   ☐ Client Rep

Revised May 2006

FOLLOW-UP INSPECTION/SURVEILLANCE REPORT

Project Name: NALF Cabaniss — Report No: 03

Project No: 112G01821 — Location: Corpus Christi, TX — Date: 1/13/2011

I. Definable Feature of Work

☐ Mobilization/Site Preparation	☐ MEC Management (Treat/Disposal)	☐ Geo Data Proc. And Interpretation
☐ Site Survey	☐ MPPEH Management (Cert)	☐ Anomaly Reacquisition
☒ Vegetation Management	☐ Geo Equipment	☐ Anomaly Intrusive Investigation
☒ Detector Aided Surface Survey	☐ Instrument Verification Strip	☐ Demobilization
☐ GPS Positional Data	☐ Geo Data Collection	☐ Site-Specific Final Report

II. Type of Inspection

☒ Follow-up ☒ Surveilllance

II. References (DOD Inst, Corporate references, SOPs, etc.):

UFP-SAP worksheet No. 12

III. Activities/Conditions Observed

Started chipping some of the brush that has been cut. Equipment working well. Placing the wood chips at the fire brakes as directed.

Detector aided surface survey of transects going well.

Conducted By: Peter Dummitt — Signature: — Date: 1/13/2011

X. UXOSO/QC Review

☐ Acceptable ☐ Unacceptable — NCR #:

Comments: No discrepancies Noted

Name: — Signature: — Date:

XI. Distribution

☒ PM ☒ SUXOS ☒ UXOSO/QC ☒ UXO Program Manager ☐ Client Rep

Revised May 2006

FOLLOW-UP INSPECTION/SURVEILLANCE REPORT

Project Name: NALF Cabaniss		Report No:	04
Project No: 112G01821	Location: Corpus Christi, TX	Date:	1/14/2011

I. Definable Feature of Work

☐ Mobilization/Site Preparation	☐ MEC Management (Treat/Disposal)	☐ Geo Data Proc. And Interpretation
☒ Site Survey	☐ MPPEH Management (Cert)	☐ Anomaly Reacquisition
☒ Vegetation Management	☐ Geo Equipment	☐ Anomaly Intrusive Investigation
☐ Detector Aided Surface Survey	☐ Instrument Verification Strip	☐ Demobilization
☐ GPS Positional Data	☐ Geo Data Collection	☐ Site-Specific Final Report

II. Type of Inspection

☒ Follow-up ☒ Surveillance

II. References (DOD Inst, Corporate references, SOPs, etc.):

Work Plan

III. Activities/Conditions Observed

Survey of transects 16, 17, 18 and 40% of 15 put in and ready for brush crew. Brush crew cut Transects 21, 22 and 90% of 20 and chipping some of the brush that was cut.

Conducted By: Peter Dummitt	Signature:	Date: 1/14/2011

X. UXOSO/QC Review

☐ Acceptable ☐ Unacceptable NCR #:

Comments: No discrepancies Noted

Name:	Signature:	Date:

XI. Distribution

☒ PM ☒ SUXOS ☒ UXOSO/QC ☒ UXO Program Manager ☐ Client Rep

Revised May 2006

FOLLOW-UP INSPECTION/SURVEILLANCE REPORT

Project Name: NALF Cabaniss		Report No:	05
Project No: 112G01821	Location: Corpus Christi, TX	Date:	1/20/2011

I. Definable Feature of Work

☒ Mobilization/Site Preparation	☐ MEC Management (Treat/Disposal)	☐ Geo Data Proc. And Interpretation
☐ Site Survey	☐ MPPEH Management (Cert)	☐ Anomaly Reacquisition
☒ Vegetation Management	☐ Geo Equipment	☐ Anomaly Intrusive Investigation
☐ Detector Aided Surface Survey	☐ Instrument Verification Strip	☐ Demobilization
☐ GPS Positional Data	☐ Geo Data Collection	☐ Site-Specific Final Report

II. Type of Inspection

☒ Follow-up ☒ Surveilllance

II. References (DOD Inst, Corporate references, SOPs, etc.):

UFP-SAP worksheet No. 12, 14, 17
HASP

III. Activities/Conditions Observed

Observed brush crew cutting transect. Doing job safely and correctly.

New person for brush crew, Jason Lopez, received initial safety briefing and review of appropriate sections of the UFP-SAP.

Conducted By: Peter Dummitt	Signature:	Date: 1/20/2011

X. UXOSO/QC Review

☐ Acceptable ☐ Unacceptable NCR #:

Comments: No discrepancies Noted

Name:	Signature:	Date:

XI. Distribution

☒ PM ☒ SUXOS ☒ UXOSO/QC ☒ UXO Program Manager ☐ Client Rep

Revised May 2006

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site		Report No:	01
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date:	1/11/2011

☐ Sunday ☐ Monday ☒ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Overcast	High Temperature: 46 Low Temperature: 19	Wind: 20 mph	Humidity 30

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Jacob Clement	Tech III	Tetra Tech NUS
Shaun Woods	Tech II	Tetra Tech NUS
Norm Piper	Tech I	Tetra Tech NUS
Fred Grosskoff	FOL	Tetra Tech NUS
Paul Supak	Supervisor	Gainco
Abe Nimroozi	Surveyor	Tetra Tech
Martin Zapata	Labor	Gainco
Jesus Garcia	Labor	Gainco
Dan Davila	Labor	Gainco
Rene Hernandez	Labor	Gainco
Ermilo Navarro	labor	Gainco
Vicente Gonzalez	Labor	Gainco
Johnny Aleman	Labor	Gainco
Marcos Marcelino	Labor	Gainco

II. Work Performed

Initial Safety briefing, Work Plan briefing, HASP briefing, put in new control points

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

IV. Problems Encountered / Corrective Actions Taken

Not all workers have the proper work status report

V. Directions Given / Received:

Paul Supak having Doctor's office fill out right form.

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site		Report No: 01	
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date: 1/11/2011	

VI. Special Notes / Lessons Learned

None

VII. Visitors

Please see tailgate safety brief for complete list.

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 1/11/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site				Report No:	02
Project No:	112G01821	Location:	NALF Cabaniss, Corpus Christi, TX		Date:	1/12/2011

☐ Sunday ☐ Monday ☐ Tuesday ☒ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Overcast	High Temperature: 43 Low Temperature: 19	Wind: 15 mph	Humidity 30

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Jacob Clement	Tech III	Tetra Tech NUS
Shaun Woods	Tech II	Tetra Tech NUS
Norm Piper	Tech I	Tetra Tech NUS
Fred Grosskoff	FOL	Tetra Tech NUS
Paul Supak	Supervisor	Gainco
Abe Nimroozi	Surveyor	Tetra Tech
Martin Zapata	Labor	Gainco
Jesus Garcia	Labor	Gainco
Dan Davila	Labor	Gainco
Rene Hernandez	Labor	Gainco
Ermilo Navarro	Surveyor	Gainco
Vicente Gonzalez	Labor	Gainco
Johnny Aleman	Labor	Gainco
Marcos Marcelino	Labor	Gainco

II. Work Performed

Daily Safety briefing, checked new control points, survey in transects 1, 2, 3, 4, and 24 end points. Checked all power tools working per manufacture specs. Cut transects 1, 2, 24, 23, and 50% of 3

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

IV. Problems Encountered / Corrective Actions Taken

Workers encountered an area today that contained a wide variety of UXO items.

V. Directions Given / Received:

All brush cutting activities were suspended in this area and moved to the opposite end of the project Site and resumed. All notifications were made IAW Para 3 of the ESSDR dtd 07 Jan 11. This area will be GPS'd and plotted on our map. Area has been marked off for avoidance.

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site — Report No: 02

Project No: 112G01821 — Location: NALF Cabaniss, Corpus Christi, TX — Date: 1/12/2011

VI. Special Notes / Lessons Learned
None

VII. Visitors
A. Andrews, Nancy Mitton, Chris Chesniss, CDR Jeff Kilion, Philip Dixon, Mark Stroop, James Wallace and Keenan Harris

VIII. Approval		
Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 1/12/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site   Report No: 03

Project No: 112G01821   Location: NALF Cabaniss, Corpus Christi, TX   Date: 1/13/2011

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☒ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Overcast	High Temperature: 47 Low Temperature: 21	Wind: 15 mph	Humidity 35

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Jacob Clement	Tech III	Tetra Tech NUS
Shaun Woods	Tech II	Tetra Tech NUS
Norm Piper	Tech I	Tetra Tech NUS
Fred Grosskoff	FOL	Tetra Tech NUS
Paul Supak	Supervisor	Gainco
Abe Nimroozi	Surveyor	Tetra Tech
Martin Zapata	Labor	Gainco
Jesus Garcia	Labor	Gainco
Dan Davila	Labor	Gainco
Rene Hernandez	Labor	Gainco
Ermilo Navarro	Labor	Gainco
Vicente Gonzalez	Labor	Gainco
Johnny Aleman	Labor	Gainco
Marcos Marcelino	Labor	Gainco

II. Work Performed

Daily Safety briefing, checked new control points, survey in transects 19, 20, 21, 22, and 23 end points. Checked all power tools working per manufacture specs. Cut transects 23, and 50% of 22.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site	Report No:	03
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date:	1/13/2011

VI. Special Notes / Lessons Learned

None

VII. Visitors

Chris Cherniss, Gary Leflore, Danielle McDermitt, Cory Wilson

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 1/13/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site | Report No: 04

Project No: 112G01821 | Location: NALF Cabaniss, Corpus Christi, TX | Date: 1/14/2011

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☒ Friday ☐ Saturday

Weather/Precipitation: Overcast w/ light drizzle	High Temperature: 62 Low Temperature: 43	Wind: 8 mph	Humidity 55

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Jacob Clement	Tech III	Tetra Tech NUS
Shaun Woods	Tech II	Tetra Tech NUS
Norm Piper	Tech I	Tetra Tech NUS
Fred Grosskoff	FOL	Tetra Tech NUS
Paul Supak	Supervisor	Gainco
Abe Nimroozi	Surveyor	Tetra Tech
Martin Zapata	Labor	Gainco
Jesus Garcia	Labor	Gainco
Dan Davila	Labor	Gainco
Rene Hernandez	Labor	Gainco
Ermilo Navarro	Labor	Gainco
Vicente Gonzalez	Labor	Gainco
Johnny Aleman	Labor	Gainco
Marcos Marcelino	Labor	Gainco

II. Work Performed

Daily Safety briefing, checked new control points, survey in transects 18, 17, 16 and 40% of 23 end points. Checked all power tools working per manufacture specs. Cut transects 22, 21 and 90% of 20.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site	Report No:	04
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date:	1/14/2011

VI. Special Notes / Lessons Learned

None

VII. Visitors

None

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 1/14/2011

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site Report No: 05

Project No: 112G01821 Location: NALF Cabaniss, Corpus Christi, TX Date: 1/15/2011

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☒ Saturday

Weather/Precipitation: Overcast Rain	High Temperature: 63 Low Temperature: 43	Wind: 8 mph	Humidity 85

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Jacob Clement	Tech III	Tetra Tech NUS
Shaun Woods	Tech II	Tetra Tech NUS
Norm Piper	Tech I	Tetra Tech NUS
Fred Grosskoff	FOL	Tetra Tech NUS
Abe Nimroozi	Surveyor	Tetra Tech
Martin Zapata	Labor	Gainco
Jesus Garcia	Labor	Gainco
Dan Davila	Labor	Gainco
Rene Hernandez	Labor	Gainco
Ermilo Navarro	Labor	Gainco
Vicente Gonzalez	Labor	Gainco
Johnny Aleman	Labor	Gainco
Marcos Marcelino	Labor	Gainco

II. Work Performed

Personnel arrived at site on time..

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

None

IV. Problems Encountered / Corrective Actions Taken

No work performed due to weather

V. Directions Given / Received:

Secured for the day.

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site
Report No: 05

Project No: 112G01821
Location: NALF Cabaniss, Corpus Christi, TX
Date: 1/15/2011

VI. Special Notes / Lessons Learned

None

VII. Visitors

None

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 1/15/2011

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site | Report No: 06

Project No: 112G01821 | Location: NALF Cabaniss, Corpus Christi, TX | Date: 1/16/2011

☒ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Overcast Rain	High Temperature: 66 Low Temperature: 55	Wind: 10 mph	Humidity 50

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Jacob Clement	Tech III	Tetra Tech NUS
Shaun Woods	Tech II	Tetra Tech NUS
Norm Piper	Tech I	Tetra Tech NUS
Fred Grosskoff	FOL	Tetra Tech NUS
Abe Nimroozi	Surveyor	Tetra Tech
Martin Zapata	Labor	Gainco
Jesus Garcia	Labor	Gainco
Dan Davila	Labor	Gainco
Rene Hernandez	Labor	Gainco
Ermilo Navarro	Labor	Gainco
Vicente Gonzalez	Labor	Gainco
Johnny Aleman	Labor	Gainco
Marcos Marcelino	Labor	Gainco

II. Work Performed

Personnel arrived at site on time.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

None

IV. Problems Encountered / Corrective Actions Taken

No work performed due to a muddy and wet work site

V. Directions Given / Received:

Secured for the day. To let work site dry out some.

VI. Special Notes / Lessons Learned

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site	Report No:	06
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date:	1/16/2011

None

VII. Visitors

N0ne

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 1/15/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site | Report No: 07

Project No: 112G01821 | Location: NALF Cabaniss, Corpus Christi, TX | Date: 1/17/2011

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☒ Friday ☐ Saturday

Weather/Precipitation: Overcast	High Temperature: 68 Low Temperature: 43	Wind: 10 mph	Humidity 30

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Jacob Clement	Tech III	Tetra Tech NUS
Shaun Woods	Tech II	Tetra Tech NUS
Norm Piper	Tech I	Tetra Tech NUS
Fred Grosskoff	FOL	Tetra Tech NUS
Paul Supak	Supervisor	Gainco
Abe Nimroozi	Surveyor	Tetra Tech
Martin Zapata	Labor	Gainco
Jesus Garcia	Labor	Gainco
Dan Davila	Labor	Gainco
Rene Hernandez	Labor	Gainco
Ermilo Navarro	Labor	Gainco
Vicente Gonzalez	Labor	Gainco
Johnny Aleman	Labor	Gainco
Marcos Marcelino	Labor	Gainco

II. Work Performed

Daily Safety briefing, checked new control points, survey in transects 12, 13, 14 and 15 end points. Checked all power tools working per manufacture specs. Cut transects 19 and 20. Detector aided sweeping as much as possible during cutting ops.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Lanes look good.

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site	Report No:	07
Project No:	112G01821 Location: NALF Cabaniss, Corpus Christi, TX	Date:	1/17/2011

VI. Special Notes / Lessons Learned

None

VII. Visitors

None

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 1/17/2011

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site	Report No:	08
Project No:	112G01821 Location: NALF Cabaniss, Corpus Christi, TX	Date:	1/18/2011

☐ Sunday ☐ Monday ☒ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Mostly Sunny	High Temperature: 72 Low Temperature: 56	Wind: 15 mph	Humidity 50

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Jacob Clement	Tech III	Tetra Tech NUS
Shaun Woods	Tech II	Tetra Tech NUS
Norm Piper	Tech I	Tetra Tech NUS
Paul Supak	Supervisor	Gainco
Abe Nimroozi	Surveyor	Tetra Tech
Martin Zapata	Labor	Gainco
Jesus Garcia	Labor	Gainco
Dan Davila	Labor	Gainco
Rene Hernandez	Labor	Gainco
Ermilo Navarro	Labor	Gainco
Vicente Gonzalez	Labor	Gainco
Johnny Aleman	Labor	Gainco
Marcos Marcelino	Labor	Gainco

II. Work Performed

Daily Safety briefing, checked new control points, survey in transects 11, 10, 9, 8 and 15% of 7 end points. Checked all power tools working per manufacture specs. Cut transects 18 and 70% of 17. Detector aided sweeping as much as possible during cutting ops.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Lanes look good. Checked brush cutting ops all looks good.

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site	Report No:	08
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date:	1/18/2011

VI. Special Notes / Lessons Learned

None

VII. Visitors

Chris Cherniss and Danielle McDurmitt

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 1/18/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site   Report No: 9

Project No: 112G01821   Location: NALF Cabaniss, Corpus Christi, TX   Date: 1/19/2011

☐ Sunday ☐ Monday ☐ Tuesday ☒ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Mostly Sunny morning to Mostly Cloudy afternoon	High Temperature:67 Low Temperature: 49	Wind: 5-20 mph	Humidity 47

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Jacob Clement	Tech III	Tetra Tech NUS
Shaun Woods	Tech II	Tetra Tech NUS
Norm Piper	Tech I	Tetra Tech NUS
Paul Supak	Supervisor	Gainco
Abe Nimroozi	Surveyor	Tetra Tech
Martin Zapata	Labor	Gainco
Jesus Garcia	Labor	Gainco
Dan Davila	Labor	Gainco
Rene Hernandez	Labor	Gainco
Ermilo Navarro	Labor	Gainco
Vicente Gonzalez	Labor	Gainco
Johnny Aleman	Labor	Gainco
Marcos Marcelino	Labor	Gainco

II. Work Performed

Daily Safety briefing, checked new control points, survey in transects 7 and put in intermediate stakes on transects 24,23,22,21 and 20. Checked all power tools working per manufacture specs. Cut transects 17 and 95% of 16. Detector aided surveys being performed to provide UXO avoidance during cutting ops.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Lanes look good. Checked brush cutting ops all looks good.
Grid stakes look good in transects

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site	Report No:	9
Project No:	112G01821 Location: NALF Cabaniss, Corpus Christi, TX	Date:	1/19/2011

VI. Special Notes / Lessons Learned

None

VII. Visitors

None

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 1/19/2011

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site Report No: 10

Project No: 112G01821 Location: NALF Cabaniss, Corpus Christi, TX Date: 1/20/2011

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☒ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Mostly Sunny morning to Mostly Cloudy afternoon	High Temperature:67 Low Temperature: 49	Wind: 5-20 mph	Humidity 47

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Jacob Clement	Tech III	Tetra Tech NUS
Shaun Woods	Tech II	Tetra Tech NUS
Norm Piper	Tech I	Tetra Tech NUS
Paul Supak	Supervisor	Gainco
Abe Nimroozi	Surveyor	Tetra Tech
Martin Zapata	Labor	Gainco
Jesus Garcia	Labor	Gainco
Dan Davila	Labor	Gainco
Rene Hernandez	Labor	Gainco
Ermilo Navarro	Labor	Gainco
Vicente Gonzalez	Labor	Gainco
Johnny Aleman	Labor	Gainco
Marcos Marcelino	Labor	Gainco
Jason Lopez	Labor	Gainco

II. Work Performed

Daily Safety briefing, checked new control points, survey in intermediate stakes in transects 19,18,17 and 16. Checked all power tools working per manufacture specs. Cut transects 16, 3 and 80% of 15 and 10% of 4, 5, 6, 7 and 8. Detector aided surveys being performed to provide UXO avoidance during cutting ops.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Lanes look good. Checked brush cutting ops all looks good.
Grid stakes look good in transects

IV. Problems Encountered / Corrective Actions Taken

Discovered bee hive in transect 15. Removed all personnel from the immediate area to avoid disturbing the hive and reported the hive to NASCC Environmental Office.

V. Directions Given / Received:

Brush crew moved to another transect until bee hive can be taken care of by NASCC Environmental Office.

VI. Special Notes / Lessons Learned

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site | Report No: 10

Project No: 112G01821 | Location: NALF Cabaniss, Corpus Christi, TX | Date: 1/20/2011

None

VII. Visitors

None

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 1/20/2011

Revised April 2005

FOLLOW-UP INSPECTION/SURVEILLANCE REPORT

Project Name: NALF Cabaniss Report No: 06

Project No: 112G01821 Location: Corpus Christi, TX Date: 1/25/2011

I. Definable Feature of Work

- ☐ Mobilization/Site Preparation
- ☒ Site Survey
- ☒ Vegetation Management
- ☐ Detector Aided Surface Survey
- ☐ GPS Positional Data
- ☐ MEC Management (Treat/Disposal)
- ☐ MPPEH Management (Cert)
- ☐ Geo Equipment
- ☐ Instrument Verification Strip
- ☐ Geo Data Collection
- ☐ Geo Data Proc. And Interpretation
- ☐ Anomaly Reacquisition
- ☐ Anomaly Intrusive Investigation
- ☐ Demobilization
- ☐ Site-Specific Final Report

II. Type of Inspection

☒ Follow-up ☒ Surveilllance

II. References (DOD Inst, Corporate references, SOPs, etc.):

USAP worksheet No. 12, 14, 17

III. Activities/Conditions Observed

Observed brush crew cutting transect. Doing job safely and correctly.

Observed survey crew putting in sample grids. Looks good

Conducted By: Peter Dummitt	Signature:	Date: 1/25/2011

X. UXOSO/QC Review

☐ Acceptable ☐ Unacceptable NCR #:

Comments: No discrepancies Noted

Name:	Signature:	Date:

XI. Distribution

☒ PM ☒ SUXOS ☒ UXOSO/QC ☒ UXO Program Manager ☐ Client Rep

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site	Report No:	11
Project No:	112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date: 1/25/2011

☐ Sunday ☐ Monday ☒ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Sunny	High Temperature:62 Low Temperature: 49	Wind: 10-20 mph	Humidity 40

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Jacob Clement	Tech III	Tetra Tech NUS
Shaun Woods	Tech II	Tetra Tech NUS
Norm Piper	Tech I	Tetra Tech NUS
Paul Supak	Supervisor	Gainco
Abe Nimroozi	Surveyor	Tetra Tech
Martin Zapata	Labor	Gainco
Jesus Garcia	Labor	Gainco
Dan Davila	Labor	Gainco
Rene Hernandez	Labor	Gainco
Ermilo Navarro	Labor	Gainco
Vicente Gonzalez	Labor	Gainco
Johnny Aleman	Labor	Gainco
Marcos Marcelino	Labor	Gainco

II. Work Performed

Daily Safety briefing, checked new control points, survey in sampling grids 7, 8, 13, 14, 21, 22, 28, 29, 30, 35 and 36.Put in intermediate stakes on transects 3,4,5 and 20% of transects 6, 7 and 8. Checked all power tools working per manufacture specs. Cut transects 4, 5 and 50% of 6 and 10% of 7. Detector aided Sweeping to provide UXO avoidance during cutting operations.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Lanes look good. Checked brush cutting ops all looks good.
Grid stakes look good in transects
Sampling grid stakes look good

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site | Report No: 11

Project No: 112G01821 | Location: NALF Cabaniss, Corpus Christi, TX | Date: 1/25/2011

VI. Special Notes / Lessons Learned

None

VII. Visitors

None

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 1/19/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site — Report No: 12

Project No: 112G01821 — Location: NALF Cabaniss, Corpus Christi, TX — Date: 1/26/2011

☐ Sunday ☐ Monday ☒ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Sunny	High Temperature:62 Low Temperature: 49	Wind: 10-20 mph	Humidity 40

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Jacob Clement	Tech III	Tetra Tech NUS
Shaun Woods	Tech II	Tetra Tech NUS
Norm Piper	Tech I	Tetra Tech NUS
Scott Roberts	Tech III	Tetra Tech NUS
Paul Supak	Supervisor	Gainco
Abe Nimroozi	Surveyor	Tetra Tech
Martin Zapata	Labor	Gainco
Jesus Garcia	Labor	Gainco
Dan Davila	Labor	Gainco
Rene Hernandez	Labor	Gainco
Ermilo Navarro	Labor	Gainco
Vicente Gonzalez	Labor	Gainco
Johnny Aleman	Labor	Gainco
Marcos Marcelino	Labor	Gainco

II. Work Performed

Daily Safety briefing, checked new control points, survey in intermediate stakes on transects 0, 1, 2, 6 and 30% of transects 7. Checked all power tools working per manufacture specs. Cut transects 6 and 7. Detector aided sweeping for ordnance avoidance during cutting ops.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Lanes look good. Checked brush cutting ops all looks good.
Grid stakes look good in transects

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site	Report No:	12
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date:	1/26/2011

VI. Special Notes / Lessons Learned

None

VII. Visitors

None

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 1/26/2011

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site Report No: 13

Project No: 112G01821 Location: NALF Cabaniss, Corpus Christi, TX Date: 1/27/2011

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☒ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Partly Cloudy	High Temperature:68 Low Temperature: 36	Wind: 5-10 mph	Humidity 42

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Jacob Clement	Tech III	Tetra Tech NUS
Shaun Woods	Tech II	Tetra Tech NUS
Norm Piper	Tech I	Tetra Tech NUS
Scott Roberts	Tech III	Tetra Tech NUS
Paul Supak	Supervisor	Gainco
Abe Nimroozi	Surveyor	Tetra Tech
Martin Zapata	Labor	Gainco
Jesus Garcia	Labor	Gainco
Dan Davila	Labor	Gainco
Rene Hernandez	Labor	Gainco
Ermilo Navarro	Labor	Gainco
Vicente Gonzalez	Labor	Gainco
Johnny Aleman	Labor	Gainco
Marcos Marcelino	Labor	Gainco

II. Work Performed

Daily Safety briefing, checked new control points, survey in intermediate stakes on transects 7 and 8. Surveyed in sample grids 1, 2, 3, 9, 15, 16, 17, 24, 31 and 32 Checked all power tools working per manufacture specs. Cut transects 8 and 9 also 25% of 10 and 10% of 11 was done. Detector aided sweeping to provide UXO avoidance during cutting ops.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Lanes look good. Checked brush cutting ops all looks good.
Grid stakes look good in transects

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site	Report No:	13
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date:	1/27/2011

VI. Special Notes / Lessons Learned

None

VII. Visitors

None

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 1/27/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site　Report No: 14

Project No: 112G01821　Location: NALF Cabaniss, Corpus Christi, TX　Date: 1/28/2011

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☒ Friday ☐ Saturday

Weather/Precipitation: Mostly Sunny	High Temperature:71 Low Temperature: 45	Wind: 5-10 mph	Humidity 45

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Jacob Clement	Tech III	Tetra Tech NUS
Shaun Woods	Tech II	Tetra Tech NUS
Norm Piper	Tech I	Tetra Tech NUS
Scott Roberts	Tech III	Tetra Tech NUS
Paul Supak	Supervisor	Gainco
Abe Nimroozi	Surveyor	Tetra Tech
Martin Zapata	Labor	Gainco
Jesus Garcia	Labor	Gainco
Dan Davila	Labor	Gainco
Rene Hernandez	Labor	Gainco
Ermilo Navarro	Labor	Gainco
Vicente Gonzalez	Labor	Gainco
Johnny Aleman	Labor	Gainco
Marcos Marcelino	Labor	Gainco

II. Work Performed

Daily Safety briefing, checked new control points, survey in intermediate stakes on transects 9. Checked all power tools working per manufacture specs. Cut transects 10 also 80% of 11 done. Detector aided sweeping to provide UXO avoidance during cutting ops. Constructed 3 road barriers.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Lanes look good. Checked brush cutting ops all looks good.
Grid stakes look good in transects

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site	Report No:	14
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date:	1/28/2011

VI. Special Notes / Lessons Learned

None

VII. Visitors

None

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 1/28/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site   Report No: 15

Project No: 112G01821   Location: NALF Cabaniss, Corpus Christi, TX   Date: 1/29/2011

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☒ Saturday

Weather/Precipitation: Mostly Sunny	High Temperature:74 Low Temperature: 60	Wind:10-20 mph	Humidity 68%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Jacob Clement	Tech III	Tetra Tech NUS
Shaun Woods	Tech II	Tetra Tech NUS
Norm Piper	Tech I	Tetra Tech NUS
Scott Roberts	Tech III	Tetra Tech NUS
Paul Supak	Supervisor	Gainco
Abe Nimroozi	Surveyor	Tetra Tech
Martin Zapata	Labor	Gainco
Jesus Garcia	Labor	Gainco
Dan Davila	Labor	Gainco
Rene Hernandez	Labor	Gainco
Ermilo Navarro	Labor	Gainco
Vicente Gonzalez	Labor	Gainco
Johnny Aleman	Labor	Gainco
Marcos Marcelino	Labor	Gainco

II. Work Performed

Daily Safety briefing, checked new control points, survey in intermediate stakes on transects 10. Checked all power tools working per manufacture specs. Cut transects 11 also 20% of 12 and 10% of 13 done. Detector aided sweeping to provide UXO avoidance during cutting ops. Working on 3 road barriers.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Lanes look good. Checked brush cutting ops all looks good.
Grid stakes look good in transects

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site | Report No: 15

Project No: 112G01821 | Location: NALF Cabaniss, Corpus Christi, TX | Date: 1/29/2011

VI. Special Notes / Lessons Learned

None

VII. Visitors

None

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 1/29/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site | Report No: 16

Project No: 112G01821 | Location: NALF Cabaniss, Corpus Christi, TX | Date: 1/30/2011

☒ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Mostly Sunny	High Temperature:74 Low Temperature: 60	Wind:10-20 mph	Humidity 68%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Jacob Clement	Tech III	Tetra Tech NUS
Shaun Woods	Tech II	Tetra Tech NUS
Norm Piper	Tech I	Tetra Tech NUS
Scott Roberts	Tech III	Tetra Tech NUS
Abe Nimroozi	Surveyor	Tetra Tech
Martin Zapata	Labor	Gainco
Jesus Garcia	Labor	Gainco
Dan Davila	Labor	Gainco
Rene Hernandez	Labor	Gainco
Ermilo Navarro	Labor	Gainco
Johnny Aleman	Labor	Gainco
Marcos Marcelino	Labor	Gainco

II. Work Performed

Daily Safety briefing, checked new control points, survey in intermediate stakes on transects 11. Checked all power tools working per manufacture specs. Cut transects 12 and 13 to 90% done. Detector aided sweeping for UXO avoidance during cutting ops.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Lanes look good. Checked brush cutting ops all looks good.
Grid stakes look good in transects

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site	Report No:	16
Project No:	112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date: 1/30/2011

VI. Special Notes / Lessons Learned

None

VII. Visitors

None

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 1/30/2011

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site | Report No: 17

Project No: 112G01821 | Location: NALF Cabaniss, Corpus Christi, TX | Date: 1/31/2011

☐ Sunday ☒ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Mostly Sunny	High Temperature:74 Low Temperature: 60	Wind:10-20 mph	Humidity 68%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Jacob Clement	Tech III	Tetra Tech NUS
Shaun Woods	Tech II	Tetra Tech NUS
Norm Piper	Tech I	Tetra Tech NUS
Scott Roberts	Tech III	Tetra Tech NUS
Paul Supak	Supervisor	Gainco
Abe Nimroozi	Surveyor	Tetra Tech
Martin Zapata	Labor	Gainco
Jesus Garcia	Labor	Gainco
Dan Davila	Labor	Gainco
Rene Hernandez	Labor	Gainco
Ermilo Navarro	Labor	Gainco
Johnny Aleman	Labor	Gainco
Marcos Marcelino	Labor	Gainco

II. Work Performed

Daily Safety briefing, checked new control points, survey in intermediate stakes on transects 12 and 13.Also surveyed in sample grids 26 and 34. Checked all power tools working per manufacture specs. Cut transects 12,13 and 14. Detector aided sweeping for UXO avoidance during cutting ops.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Lanes look good. Checked brush cutting ops all looks good.
Grid stakes look good in transects

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site Report No: 17

Project No: 112G01821 Location: NALF Cabaniss, Corpus Christi, TX Date: 1/31/2011

VI. Special Notes / Lessons Learned

None

VII. Visitors

None

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 1/31/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site Report No: 18

Project No: 112G01821 Location: NALF Cabaniss, Corpus Christi, TX Date: 2/1/2011

☐ Sunday ☐ Monday ☒ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Mostly Cloudy	High Temperature:68 Low Temperature: 55	Wind:15-35 mph	Humidity 78%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Jacob Clement	Tech III	Tetra Tech NUS
Shaun Woods	Tech II	Tetra Tech NUS
Norm Piper	Tech I	Tetra Tech NUS
Scott Roberts	Tech III	Tetra Tech NUS
Paul Supak	Supervisor	Gainco
Abe Nimroozi	Surveyor	Tetra Tech
Martin Zapata	Labor	Gainco
Jesus Garcia	Labor	Gainco
Dan Davila	Labor	Gainco
Rene Hernandez	Labor	Gainco
Ermilo Navarro	Labor	Gainco
Johnny Aleman	Labor	Gainco
Marcos Marcelino	Labor	Gainco

II. Work Performed

Daily Safety briefing, checked new control points, survey in intermediate stakes on transects 14.Also surveyed in sample grids 5, 11 and 19 and surveyed in two IVS location and one monitoring well. Checked all power tools working per manufacture specs. Cut transects 15 and touch up work on nine other transects. Detector aided sweeping to provide UXO avoidance during cutting

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Lanes look good. Checked brush cutting ops all looks good.
Grid stakes look good in transects

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site	Report No:	18
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date:	2/1/2011

VI. Special Notes / Lessons Learned

None

VII. Visitors

Chris Cherniss and Gary Leflore

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 2/1/2011

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site   Report No: 19

Project No: 112G01821   Location: NALF Cabaniss, Corpus Christi, TX   Date: 2/2/2011

☐ Sunday ☐ Monday ☐ Tuesday ☒ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Mostly Cloudy	High Temperature:42 Low Temperature: 26	Wind:25-35 mph	Humidity 43%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Jacob Clement	Tech III	Tetra Tech NUS
Shaun Woods	Tech II	Tetra Tech NUS
Norm Piper	Tech I	Tetra Tech NUS
Scott Roberts	Tech III	Tetra Tech NUS

II. Work Performed

Daily Safety briefing, All transects were checked and all Non-Munitions scrap that could be removed, that would interfere with GEO survey to be conducted at a later date, was removed from the transects. Without an ESS in place some items that were seen on the surface had to be left in place because part of it was sub-surface.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Lanes look good. Checked brush cutting ops all looks good.
Grid stakes look good in transects

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

None

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 2/2/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site — Report No: 01

Project No: 112G01821 — Location: NALF Cabaniss, Corpus Christi, TX — Date: 5/10/2011

☐ Sunday ☐ Monday ☒ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Overcast	High Temperature 82 Low Temperature: 77	Wind: 20 mph	Humidity 75

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS
Norm Piper	UXO Site Mngr.	Tetra Tech NUS

II. Work Performed

Initial Safety briefing, Work Plan briefing, HASP briefing, put in new control points

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

IV. Problems Encountered / Corrective Actions Taken

V. Directions Given / Received:

VI. Special Notes / Lessons Learned

None

VII. Visitors

Please see tailgate safety brief for complete list.

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 5/10/2011

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site			Report No:	01
Project No:	112G01821	Location:	NALF Cabaniss, Corpus Christi, TX	Date:	5/10/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site

Report No: 2

Project No: 112G01821

Location: NALF Cabaniss, Corpus Christi, TX

Date: 5/11/2011

☐ Sunday ☐ Monday ☐ Tuesday ☒ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Cloudy	High Temperature: 85 Low Temperature: 77	Wind: 20 mph	Humidity 80

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Troy Smith	Tech I	Tetra Tech NUS
Norm Piper	UXO Site Manager.	Tetra Tech NUS

II. Work Performed

Daily Safety briefing checked QC control points, survey IVS control items and transect 1, 2, 3, 4, 5 and 6 end points. Checked all power tools working per manufacture specs. Cut transects 1, 2, 3, 4, and 60% of 5 and 6 for vegetation management..

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Places control item D 121 at 6 inches depth, D 123 at 13 inch depth and D 125 at 20 inch depth according to Work Plan paragraph 17.10.4 . Checked cut transects 1, 2, 3, 4 to ensure correct vegetation height requirements were met.

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

None

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 5/11/2011

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site	Report No:	03
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date:	5/12/2011

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☒ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Cloudy Thunder storm in the PM	High Temperature: 83 Low Temperature: 77	Wind: 20 mph	Humidity 80

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS

II. Work Performed

Vegetation management, Brush cutting of transects 7 through 9

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Checked transects 1 through 9 of vegetation management operations.

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

None

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 5/12/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site   Report No: 04

Project No: 112G01821   Location: NALF Cabaniss, Corpus Christi, TX   Date: 5/13/2011

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☒ Friday ☐ Saturday

Weather/Precipitation: Overcast	High Temperature: 88 Low Temperature: 66	Wind: 10 mph	Humidity 60

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS

II. Work Performed

Vegetation management, Brush cutting of transects 10 through 13

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Checked transects 10 through 13 of vegetation management operations.

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

Smiley Nava

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 5/13/2011

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site | Report No: 05

Project No: 112G01821 | Location: NALF Cabaniss, Corpus Christi, TX | Date: 5/14/2011

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☒ Saturday

Weather/Precipitation: Sunny	High Temperature: 88 Low Temperature: 66	Wind: 5-15 mph	Humidity 50

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS

II. Work Performed

Vegetation management, Brush cutting of transects 14 through 19 and started 20.
Started Detector Aided Surface Survey Transect 1 (50% completed)

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Checked transects 14 through 19 of vegetation management operations.
Planted surface seeds in transects 1 seed #02 176 degrees 128 inches from stake Q-1(N 17143106.83 E 1328565.54) and 2 seed #09 160 degrees 190 inches from stake O-2 (N 17142916.83 E 1328662.88)

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

Smiley Nava

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 5/14/2011

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site — Report No: 06

Project No: 112G01821 — Location: NALF Cabaniss, Corpus Christi, TX — Date: 5/15/2011

☒ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Sunny	High Temperature: 83 Low Temperature: 66	Wind:10-20 mph	Humidity 50

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS

II. Work Performed

Vegetation management, Brush cutting of transects 20 through 24.
Completed surface sweep of transect 1

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Checked transects 20 through 24 of vegetation management operations.
Planted surface seeds in transect 3 seed #07 352 degrees 68 inches from stake M-3, transect 4 seed #12 357 degrees 103 inches from stake R-4, transect 7 seed #04 336 degrees 148 inches from stake J-7, transect 8 seed #03 10 degrees 186 inches from stake E-8,
Placed one sub-surface seed in transect 1 seed B01 350 degrees 66 inches from stake O-1

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

N/A

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 5/15/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site	Report No:	07
Project No:	112G01821 Location: NALF Cabaniss, Corpus Christi, TX	Date:	5/16/2011

☐ Sunday ☒ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Sunny	High Temperature: 86 Low Temperature: 67	Wind:10-20 mph	Humidity 42%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS

II. Work Performed

Locations of Surface seed items placed in transect 1 seed #02 176 degrees 128 inches from stake Q-1, transect 2 seed #09 160 degrees 190 inches from stake O-2, transect 5 seed #08 356 degrees 163 inches from stake K-5, transect 6 seed #01 48 degrees 58 inches from stake H-6, transect 9 seed #11 181 degrees 170 inches from stake J-9, transect 10 seed #06 182 degrees 230 inches from stake M-10, transect 11 seed #05 136 degrees 48 inches from stake H-11, and transect 12 seed #08 359 degrees 211 inches from stake E-12

Completed mag and flag operation transect 2, 3, 4, 5, 6, 7 and 8 all surface seed items found.

One subsurface seed item planted seed B-01 350 degrees 66 inches from stake O-1 in transect 1.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Planted surface seeds in transects 5, 6, 9,10, 11 and 12

Morning GPS QC 50 pdop 1.93 at 24 inches. QC 51 pdop 1.85 at 22 inches

Afternoon GPS QC 50 pdop 2.15 at 25 inches. QC 51 pdop 2,25 at 24 inches

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

Gary LeFfure PW Env., Christopher Cherniss PW Env.

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 5/16/2011

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site		Report No:	08
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date:	5/17/2011

☐ Sunday ☐ Monday ☒ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Sunny	High Temperature: 84 Low Temperature: 63	Wind:10-20 mph	Humidity 42%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS
Frank Loney	Tech I	Tetra Tech NUS

II. Work Performed

Locations of Surface seed items placed in transect 13 no seed, transect 14 seed #07 169 degrees 85 inches from stake S-14, transect 15 seed #01 169 degrees 300 inches from stake E-15, transect 16 seed #12 185 degrees 250 inches from stake F-16, transect 17 seed #04 350 degrees 212 inches from stake I-17, transect 18 seed #10 168 degrees 204 inches from stake L-18, and transect 19 seed #03 157 degrees 57 inches from stake N-191. Completed mag and flag operation transect 9, 10, 11, 12, 13, 14 and 15 all surface seed items found.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Planted surface seeds in transects 14, 15, 16, 17, 18 and 19
Morning GPS QC 50 pdop 2.13 at 20 inches. QC 51 pdop 2.20 at 20 inches

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

None

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 5/17/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site		Report No: 09	
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date: 5/18/2011	

☐ Sunday ☐ Monday ☐ Tuesday ☒ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Cloudy	High Temperature: 81 Low Temperature: 63	Wind:10-20 mph	Humidity 52%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Troy Smith	Tech I	Tetra Tech NUS
Frank Loney	Tech I	Tetra Tech NUS

II. Work Performed

Locations of Buried seed items placed in transect 2 no seed, transect 3 seed B-07 182 degrees 191 inches from stake J-3 N 17142743.64 E 1328660.53, transect 4 seed B-09 132 degrees 32 inches from stake J-4 N 17142756.71 E 1328717.76, transect 5 seed B-06 187 degrees 200 inches from stake F-5 N17142545.05 E 1328759.21, transect 6 seed B-03 348 degrees 208 inches from stake H-6 N 17142677.51 E 1328811.49, transect 7 seed B-04 210 degrees 40 inches from stake L-7 N 17142859.30 E 1328857.12, transect 8 seed B-08 335 degrees 138 inches from stake R-8 N 17143171.20 E 1328907.28, transect 9 no seed, transect 10 seed B-11 160 degrees 126 inches from stake I-10 N 17142703.21 E 1329014.79, transect 11 seed B-14 165 degrees 132 inches from stake G-11 N 17142597.53 E 1329063.67, transect 12 seed B-05 5 degrees 112 inches from stake E-12 N 17142597.54 E 1329063.67, transect 13 seed B-12 315 degrees 25 inches from stake D-13 N 17142461.11 E 1329158.69, transect 14 seed B-13 15 degrees 183 inches from stake E-14 N 17142524.12 E 1329214.50, transect 15 seed B-02 6 degrees 147 inches from stake H-15 N 17142671,81 E 1329262.83 and transect 15 seed B-10 208 degrees 87 inches from stake J-15. Completed mag and flag operation transect 16 seed #12 found and 17 seed #04 found.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Planted buried seeds in transects 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 AND 15
Morning GPS QC 50 pdop 1.82 at 21 inches. QC 51 pdop 1.63 at 18 inches
Afternoon GPS QC 50 pdop 1.84 at 23 inches. QC 51 pdop 1.90 at 23 inches

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

None

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 5/18/2011

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site			Report No:	09
Project No:	112G01821	Location:	NALF Cabaniss, Corpus Christi, TX	Date:	5/18/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site	Report No:	10
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date:	5/23/2011

☐ Sunday ☒ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Partly Cloudy	High Temperature: 89 Low Temperature: 67	Wind:15-30 mph	Humidity 52%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS
Frank Loney	Tech I	Tetra Tech NUS
Jim Coffman	Geophysicist	Tetra Tech NUS
Thomas Douglas		NAVEODTD
Arnold Burr		NAVEODTD

II. Work Performed

Locations of Buried seed items placed in transect 16 no seed, transect 17 seed B-21 355 degrees 28 inches from stake K-17, transect 18 seed B-19 265 degrees 29 inches from stake F-18, transect 19 seed B-20 20 degrees 86 inches from stake E-19, transect 20 seed B-18 1 degrees 231 inches from stake B-20, transect 21 seed B-17 165 degrees 96 inches from stake H-21, transect 22 seed B-16 172 degrees 217 inches from stake L-22, transect 23 no seed and transect 24 no seed

Locations of surface seeds transect 20 no seed and transect 21 no seed, transect 22 seed #13 8 degrees 86 inches from stake I-22, transect 23 seed #12 84 degrees 24 inches from stake L-23, and transect 24 seed #18 356 degrees 294 inches from stake L-24.

Sweep team located seed #10 in transect 18, seed #03 in transect 19, seed #13 in transect 22, seed #12 in transect 23 and seed #18 in transect 24.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Planted buried seeds in transects 17, 18, 19, 20, 21, 22 and 23
Put in surface seeds on transects 22,23 and 24
No GPS info today due to no data collected.

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

QA Team from NAVEODTD Thomas Douglas and Arnold Burr

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site	Report No:	10
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date:	5/23/2011

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 5/23/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site			Report No:	11
Project No:	112G01821	Location:	NALF Cabaniss, Corpus Christi, TX	Date:	5/24/2011

☐ Sunday ☐ Monday ☒ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Mostly Sunny	High Temperature: 92 Low Temperature: 67	Wind:20-30 mph	Humidity 52%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS
Frank Loney	Tech I	Tetra Tech NUS
Jim Coffman	Geophysicist	Tetra Tech NUS
Thomas Douglas		NAVEODTD
Arnold Burr		NAVEODTD

II. Work Performed

QC 25% of transects 1, 2, 3 and 4 completed of Incinerator surface MC Survey transects passed. QC 10% of transects 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23 and 24 completed of Incinerator surface MC Survey transects passed.

MPPEH Items located and logged Transect 5. Items include **MPPEH, Control#29, 1ea AN-M23 Practice Bomb, Picture# DSCN 0050,Transect #5 N 17143059.4 E 1328761.87, MPPEH, Control #31, 1ea AN-M23 Practice Bomb, Picture# DSCN0050, Transect #5, N17143634.47 E 1328760.1 MPPEH, Control #32, 1ea AM-M23 Practice Bomb, Picture #DSCN 0053, Transect #5, N17143030.14 E1328758.54 MPPEH, Control #34,1ea Practice Bomb, Picture #55, Transect #5 N17143029.35 E 1328756.93 MPPEH, Control #38,1ea 2.75 inch Rocket Warhead, Picture #DSCN 0059, Transect #5, N 17143026.48 E 1328758.58 MPPEH, Control #39, 1ea 2.75 inch Rocket Warhead, Picture #DSCN 0059, Transect #5, N17143026.48 E 1328758.58**

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

QA Team from NAVEODTD Thomas Douglas and Arnold Burr conducting QA Audit
Morning GPS QC 50 pdop 1.61 at 17 inches. QC 51 pdop 2.10 at 20 inches
Afternoon GPS QC 50 pdop 1.84 at 23 inches. QC 51 pdop 1.90 at 23 inches

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site — Report No: 11

Project No: 112G01821 — Location: NALF Cabaniss, Corpus Christi, TX — Date: 5/24/2011

QA Team from NAVEODTD Thomas Douglas and Arnold Burr
Gary LeFfure PW Env., Christopher Cherniss PW Env.

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 5/24/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site	Report No:	12
Project No:	112G01821 Location: NALF Cabaniss, Corpus Christi, TX	Date:	5/25/2011

☐ Sunday ☐ Monday ☐ Tuesday ☒ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Mostly Sunny	High Temperature: 96 Low Temperature: 77	Wind:10-20 mph	Humidity 52%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS
Frank Loney	Tech I	Tetra Tech NUS
Jim Coffman	Geophysicist	Tetra Tech NUS
Thomas Douglas		NAVEODTD
Arnold Burr		NAVEODTD

II. Work Performed

Collecting MDAS info on Transect 5. Items encountered were

Locations of Buried seed items placed in transect 17 seed B-21 N 17142833.94 E 1329361.89, transect 18 seed B-19 N 17142560.04 E 1329408.83, transect 19 seed B-20 N17142516.98 E 1329464.15, transect 20 seed B-18 N 17142379.19 E 1329513.87, transect 21 seed B-17 N 17142653.40 E 1329564.26, transect 22 seed B-16 N 17142841.55 E 1329614.84, transect 23 no seed, transect 24 no seed.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

QA Team from NAVEODTD Thomas Douglas and Arnold Burr conducting QA Audit
Morning GPS QC 50 pdop 2.19 at 20 inches. QC 51 pdop 2.23 at 20 inches
Afternoon GPS QC 50 pdop 2.14 at 25 inches. QC 51 pdop 2.58 at 24 inches

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site	Report No:	12
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date:	5/25/2011

QA Team from NAVEODTD Thomas Douglas and Arnold Burr
Tread Kissam and Brian Syme NAVFAC SE.

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 5/25/2011

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site		Report No: 13	
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date: 5/26/2011	

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☒ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Mostly Sunny	High Temperature: 95 Low Temperature: 79	Wind:10-20 mph	Humidity 48%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS
Frank Loney	Tech I	Tetra Tech NUS
Jim Coffman	Geophysicist	Tetra Tech NUS
Thomas Douglas		NAVEODTD
Arnold Burr		NAVEODTD

II. Work Performed

Logging location and MDAS info on Transect 7. See MDAS log on SUXO Daily report.

Magazine area prepped for storage of MEC/MPPEH

Transportation Vehicle was outfitted for hauling explosives

Demo sites prepared for demo operations

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

QA Team from NAVEODTD Thomas Douglas and Arnold Burr conducting QA Audit departed today
Morning GPS QC 50 pdop 1.89 at 18 inches. QC 51 pdop 1.91 at 18 inches
Afternoon GPS QC 50 pdop 2.12 at 25 inches. QC 51 pdop 2.19 at 25 inches

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

QA Team from NAVEODTD Thomas Douglas and Arnold Burr

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 5/26/2011

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site			Report No:	13
Project No:	112G01821	Location:	NALF Cabaniss, Corpus Christi, TX	Date:	5/26/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site — Report No: 14

Project No: 112G01821 — Location: NALF Cabaniss, Corpus Christi, TX — Date: 5/27/2011

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☒ Friday ☐ Saturday

Weather/Precipitation: Mostly Sunny	High Temperature: 94 Low Temperature: 79	Wind:10-20 mph	Humidity 56%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS
Frank Loney	Tech I	Tetra Tech NUS
Jim Coffman	Geophysicist	Tetra Tech NUS

II. Work Performed

Demo operations

Transportation Vehicle was outfitted for hauling explosives

(4) Demo shots went off as planned. Shot (1) 2,75" warhead N 17143043.01 E 1328713.01 at 1537. Shot (2) 40mm grenade N 17143028.59 E 1328839.93 at 1540, Shot (3) 40mm grenade N 17143012.45 E 1328855.17 at 1542, Shot (4) 37mm N 17142961.05 E 1328915.13 at 1545 the cleanup shot went at 1620

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Morning GPS QC 50 pdop 2.35 at 22 inches. QC 51 pdop 1.88 at 18 inches
Afternoon GPS QC 50 pdop 2.00 at 20 inches. QC 51 pdop 2.39 at 30 inches

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

Michael Harbisen, Alex Baldems, Kirk Delgado NASCCFD AND Chris Cherniss and Gary LeFlore NAVFAC PW

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 5/27/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site		Report No: 15	
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date: 5/28/2011	

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☒ Saturday

Weather/Precipitation: Partly Cloudy	High Temperature: 94 Low Temperature: 79	Wind:10-30 mph	Humidity 51%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS
Frank Loney	Tech I	Tetra Tech NUS
Jim Coffman	Geophysicist	Tetra Tech NUS

II. Work Performed

QC of the last hazard area of transects 5 and 6. Transects 6 passed. (2) (2.75 Inch rocket fins) MDAS Items found in transect 5, transect failed QC check. Items certified MDAS. Items logged on MDAS log. (See SUXOS Daily Report).

Team performed additional detector aided surface survey of transect 5.

QC of transect 5 rechecked and passed.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Morning GPS QC 50 pdop 2.25 at 22 inches. QC 51 pdop 2.22 at 20 inches
Afternoon GPS QC not taken due to satellite issues.

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 5/28/2011

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site			Report No:	15
Project No:	112G01821	Location:	NALF Cabaniss, Corpus Christi, TX	Date:	5/28/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site Report No: 16

Project No: 112G01821 Location: NALF Cabaniss, Corpus Christi, TX Date: 5/29/2011

☒ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Mix Clouds	High Temperature: 90 Low Temperature: 77	Wind:25-35 mph	Humidity 51%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS
Frank Loney	Tech I	Tetra Tech NUS
Jim Coffman	Geophysicist	Tetra Tech NUS

II. Work Performed

No QC performed.

UXO escort performed by 1 tech for Geophysics. Remaining personnel released.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Pdop not taken today

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 5/29/2011

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site   Report No: 17

Project No: 112G01821   Location: NALF Cabaniss, Corpus Christi, TX   Date: 5/31/2011

☐ Sunday ☐ Monday ☒ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Partly Cloudy	High Temperature: 91 Low Temperature: 76	Wind:15-30 mph	Humidity 46%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS
Frank Loney	Tech I	Tetra Tech NUS
Jim Coffman	Geophysicist	Tetra Tech NUS

II. Work Performed

Logging locations, MDAS, & MPPEH items within transect 5

Checked vehicle check list filled out properly for transportation of explosives.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

No blind seeds placed, no blind seeds recovered,
Morning GPS QC 50 pdop 1.57 at 21 inches. QC 51 pdop 1.67 at 20 inches
Afternoon GPS QC 50 pdop 2.71 at 30 inches. QC 51 pdop 2.19 at 26 inches

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 5/31/2011

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site			Report No: 18
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX		Date: 6/3/2011

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☒ Saturday

Weather/Precipitation: Partly Cloudy	High Temperature: 93 Low Temperature: 77	Wind:15-30 mph	Humidity 56%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS
Frank Loney	Tech I	Tetra Tech NUS
Jim Coffman	Geophysicist	Tetra Tech NUS

II. Work Performed

Flags were placed at 24 different Picks today: 68, 42, 72, 69, 60, 36, 13, 5, 47, 50, 24, 51, 15, 14, 20, 22, 43, 21, 73, 37, 32, 17, 1 and 40

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Preparing for dig operations by require. 20 flags to anomalies with the 858
Morning GPS QC 50 pdop 2.57 at 26 inches. QC 51 pdop 2.60 at 25 inches
Afternoon GPS QC 50 pdop 2.41 at 28 inches. QC 51 pdop 2.85 at 28 inches

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

Smiley Nava Biologist

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 6/3/2011

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site		Report No:	19
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date:	6/5/2011

☒ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Partly Cloudy	High Temperature: 93 Low Temperature: 77	Wind:10-20 mph	Humidity 46%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS
Frank Loney	Tech I	Tetra Tech NUS
Jim Coffman	Geophysicist	Tetra Tech NUS

II. Work Performed

Flags were placed at 25 different Picks today: 52, 18, 11, 70, 44, 57, 27, 16, 26, 48, 33, 31, 25, 19, 2, 62, 38, 34, 7, 64, 23, 12, 56, 54 and 29

Equipment malfunction for picks 32, 17, 27, 2, and 38. Geophysical equipment issue. All 4 picks will be reacquired at a later date after equipment issue has been resolved and deemed operational via GSV recheck. (See SUXO report).

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Checked paper work on daily instrument check at the IVS. Paper work looks good.
Morning GPS QC 50 pdop 1.96 at 24 inches. QC 51 pdop 1.97 at 21 inches
Afternoon GPS QC 50 pdop 1.99 at 21 inches. QC 51 pdop 2.09 at 21 inches

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

None

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 6/5/2011

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site	Report No:	19
Project No:	112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date: 6/5/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site — Report No: 20

Project No: 112G01821 — Location: NALF Cabaniss, Corpus Christi, TX — Date: 6/6/2011

☐ Sunday ☒ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Mostly Sunny	High Temperature: 95 Low Temperature: 75	Wind:10-15 mph	Humidity 48%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS
Frank Loney	Tech I	Tetra Tech NUS
Jim Coffman	Geophysicist	Tetra Tech NUS

II. Work Performed

Flags were placed at 21 different Picks today: 55, 71, 67, 53, 61, 3, 66, 63, 45, 41, 10, 58, 59, 49, 9, 8, 7, 6, 39, 30 and 28.

Constructed 4 additional road barriers at magazine location

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Checked placement of new road barriers.
Morning GPS QC 50 pdop 1.86 at 18 inches. QC 51 pdop 1.84 at 18 inches
Afternoon GPS QC 50 pdop 2.09 at 24 inches. QC 51 pdop 2.06 at 23 inches

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

Jim Rossi

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 6/6/2011

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site	Report No:	21
Project No:	112G01821 Location: NALF Cabaniss, Corpus Christi, TX	Date:	6/7/2011

☐ Sunday ☐ Monday ☒ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Mostly Sunny	High Temperature: 95 Low Temperature: 70	Wind:10-15 mph	Humidity 36%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS
Frank Loney	Tech I	Tetra Tech NUS
Jim Coffman	Geophysicist	Tetra Tech NUS

II. Work Performed

Recovered seeds B-01, B-06, B-09, B-12, B-13, B-20 (see Target Excavation Field Tracking Form)

Last (3) anomaly reacquire locations flagged.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

QC of anomaly # 42, 13, 5, 1, 2, 4, 3, 9, 70, 73, 68, 71 and 69 all passed QC.
Morning GPS QC 50 pdop 1.89 at 22 inches. QC 51 pdop 1.83 at 18 inches
Afternoon GPS QC 50 pdop 1.83 at 23 inches. QC 51 pdop 1.87 at 23 inches

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

Jim Rossi TTNUS, Dough Murray NOSSA Auditor, Brian Syme NAVFACSE and Tread Kissam NAVFACSE

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 6/7/2011

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site   Report No: 22

Project No: 112G01821   Location: NALF Cabaniss, Corpus Christi, TX   Date: 6/8/2011

☐ Sunday ☐ Monday ☐ Tuesday ☒ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Mostly Sunny	High Temperature: 95 Low Temperature: 70	Wind:10-15 mph	Humidity 36%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS
Frank Loney	Tech I	Tetra Tech NUS

II. Work Performed

(3) Anomaly locations dug and cleared and QC of hole was completed.

Working (2) anomalies 317 and 299.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

QC of anomaly # 467, 458 and 398 all passed QC.
Morning GPS QC 50 pdop 2.34 at 28 inches. QC 51 pdop 2.27 at 26 inches
Afternoon GPS QC 50 pdop 1.83 at 24 inches. QC 51 pdop 1.76 at 23 inches

IV. Problems Encountered / Corrective Actions Taken

None at this time

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

Gary LeFlore PW Env

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 6/8/2011

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site		Report No:	23
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date:	6/9/2011

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☒ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Mostly Sunny	High Temperature: 95 Low Temperature: 70	Wind:10-15 mph	Humidity 36%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS
Frank Loney	Tech I	Tetra Tech NUS

II. Work Performed

(14) Anomaly locations dug and cleared and then QC of hole was completed.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

QC of anomalies # 317, 299, 147, 75, 285, 274, 115, 117, 108, 52, 251, 213 and 98 all passed QC.
QC of anomaly 328 bottom of hole clear to 24 inches, however, anomalies are still present after clearing 36 inches from the flag on transect #7 hole passed QC
Morning GPS QC 50 pdop 2.18 at 23 inches. QC 51 pdop 2.20 at 24 inches
Afternoon GPS QC 50 pdop 2.09 at 23 inches. QC 51 pdop 2.11 at 23 inches

IV. Problems Encountered / Corrective Actions Taken

None

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

Chris Cherniss and Gary LeFlore PW Env

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 6/9/2011

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site			Report No:	23
Project No:	112G01821	Location:	NALF Cabaniss, Corpus Christi, TX	Date:	6/9/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site		Report No:	24
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date:	6/10/2011

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☒ Friday ☐ Saturday

Weather/Precipitation: Mostly Sunny	High Temperature: 94 Low Temperature: 74	Wind:10-15 mph	Humidity 46%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS
Frank Loney	Tech I	Tetra Tech NUS

II. Work Performed

(14) Anomaly locations dug and cleared and then QC of holes was completed.

(5) Demo shots went off as planned. Shot #1 (6) 2.75" warhead M151 N 17143027.58 E 1328708.85 at 1504. Shot #2 (5) AN MK23 practice bombs N 17143030.29 E 1328711.06 at 1506, Shot #3 (5) AN MK23 practice bombs N 17143033.50 E 1328712.05 at 1507, Shot #4A (2) AN MK23 practice bombs N 17143036.99 E 1328696.68 at 1508. Shot #4B (3) 2.75" warhead M151 N 17143038.33 E 1328692.53 at 1508, Shot #4C (3) AN MK23 practice bombs N 17143041.88 E 1328869.22 at 1508. Shot #4D (2) AN MK23 practice bombs N 17143043.31 E 1328700.06 at 1510. Shot #5 (2) 3.5inch rocket (1) CAD N 17143037.17 E 1328712.26 at 1510.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

QC of anomalies # 330, 102, 43, 289, 90, 134, 161, 365, 158, 305, 234, 205, 149 and 105 all passed QC.
Morning GPS QC 50 pdop 2.13 at 23 inches. QC 51 pdop 1.89 at 21 inches
Afternoon GPS QC 50 pdop 2.50 at 31 inches. QC 51 pdop 2.46 at 30 inches

IV. Problems Encountered / Corrective Actions Taken

None

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

Chris Cherniss and Gary LeFlore PW Env, NALF Cabaniss Fire Support

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 6/10/2011

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site			Report No:	24
Project No:	112G01821	Location:	NALF Cabaniss, Corpus Christi, TX	Date:	6/10/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site		Report No:	25
Project No: 112G01821	Location: NALF Cabaniss, Corpus Christi, TX	Date:	6/11/2011

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☒ Saturday

Weather/Precipitation: Sunny	High Temperature: 93 Low Temperature: 74	Wind:15-25 mph	Humidity 40%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS
Frank Loney	Tech I	Tetra Tech NUS

II. Work Performed

Check debris from shot holes. Collected and Certified MDAS debris. Conducted a 100% inventory of the MEC Storage Magazine and as of this date there are 104 items awaiting treatment. Conducted a 100% inventory of the MDAS container, and added 30 lbs of metal scrap from the demo shot holes.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Morning GPS QC 50 pdop 2.13 at 23 inches. QC 51 pdop 1.89 at 21 inches
Afternoon GPS QC 50 pdop 2.50 at 31 inches. QC 51 pdop 2.46 at 30 inches

IV. Problems Encountered / Corrective Actions Taken

None

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

None

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 6/10/2011

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site   Report No: 26

Project No: 112G01821   Location: NALF Cabaniss, Corpus Christi, TX   Date: 6/9/2011

☒ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Mostly Sunny	High Temperature: 97 Low Temperature: 72	Wind:15-25 mph	Humidity 42%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Bob Shauger	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS
Frank Loney	Tech I	Tetra Tech NUS

II. Work Performed

(12) Anomaly locations dug, cleared, and then QC of holes was completed.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

QC of anomalies # 19, 17, 14, 28, 39, 44, 124, 431, 416, 265, 239 and 238 all passed QC.
QC of anomaly 28 no contact to 40 inches, also anomaly 39 no contact to 40 inches
Morning GPS QC 50 pdop 2.22 at 29 inches. QC 51 pdop 2.25 at 28 inches
Afternoon GPS QC 50 pdop 2.06 at 23 inches. QC 51 pdop 2.08 at 22 inches

IV. Problems Encountered / Corrective Actions Taken

None

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 6/9/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site   Report No: 27

Project No: 112G01821   Location: NALF Cabaniss, Corpus Christi, TX   Date: 6/13/2011

☐ Sunday ☒ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Mostly Sunny	High Temperature: 98 Low Temperature: 74	Wind:10-15 mph	Humidity 34%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Bob Shauger	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS
Frank Loney	Tech I	Tetra Tech NUS

II. Work Performed

(19) anomaly locations dug and cleared and then QC of hole was done

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

QC of anomalies # 345, 339, 181, 349, 456, 335, 437, 412, 452, 420, 297, 296, 376, 391,306, 297, 270, 189 and 169 all passed QC.
QC of anomaly 279 no contact to 24 inches, also anomaly 296 no contact to 24 inches
Morning GPS QC 50 pdop 2.28 at 26 inches. QC 51 pdop 2.30 at 27 inches
Afternoon GPS QC 50 pdop 1.84 at 24 inches. QC 51 pdop 1.77 at 23 inches

IV. Problems Encountered / Corrective Actions Taken

None

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 6/13/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site   Report No: 28

Project No: 112G01821   Location: NALF Cabaniss, Corpus Christi, TX   Date: 6/16/2011

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☒ Thursday ☐ Friday ☐ Saturday

Weather/Precipitation: Mostly Sunny Heat index 106	High Temperature: 96 Low Temperature: 82	Wind:20-30 mph	Humidity 42%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS

II. Work Performed

(4) Additional anomalies locations dug and cleared and then QC of hole was completed.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

QC of anomalies #244, 243, 173 and 329 all passed QC.
Morning GPS QC 50 pdop 2.28 at 31 inches. QC 51 pdop 2.11 at 29 inches
Afternoon GPS QC 50 pdop 2.59 at 23 inches. QC 51 pdop 2.60 at 23 inches

IV. Problems Encountered / Corrective Actions Taken

None

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

none

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 6/16/2011

Revised April 2005

DAILY QUALITY CONTROL REPORT

Project Name:	Former Incinerator Disposal Site	Report No:	29
Project No:	112G01821 Location: NALF Cabaniss, Corpus Christi, TX	Date:	6/17/2011

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☒ Friday ☐ Saturday

Weather/Precipitation: Mostly Sunny Heat index 108	High Temperature: 98 Low Temperature: 84	Wind:20-30 mph	Humidity 40%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Bob Shauger	Tech III	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS

II. Work Performed

(3) Demo shots went off as planned. Shot #1 (37) AN MK23 practice bombs N 17143027.58 E 1328708.85 at 1432. Shot #2 (21) AN MK23 practice bombs, (1) 2.75" warhead M151 and (3) 3.5inch rocket N 17143036.99 E 1328696.68 at 1435. . Shot #3 (30) AN MK23 practice bombs N 17143030.29 E 1328711.06 at 1439,

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

Morning GPS QC 50 pdop 2.07 at 22 inches. QC 51 pdop 1.87 at 22 inches
Afternoon GPS QC 50 pdop 1.45 at 17 inches. QC 51 pdop 1.80 at 21 inches

IV. Problems Encountered / Corrective Actions Taken

None

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

Chris Cherniss and Gary LeFfure PW Env, NALF Cabaniss Fire Support

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 6/17/2011

DAILY QUALITY CONTROL REPORT

Project Name: Former Incinerator Disposal Site   Report No: 30

Project No: 112G01821   Location: NALF Cabaniss, Corpus Christi, TX   Date: 6/18/2011

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☒ Saturday

Weather/Precipitation: Mostly Sunny Heat index 106	High Temperature: 96 Low Temperature: 80	Wind:25-35 mph	Humidity 62%

I. Personnel Present (Reference/attach SUXOS's daily report if applicable)

Name	Position	Company
Syd Rodgers	SUXOS	Tetra Tech NUS
Peter Dummitt	Safety/QC	Tetra Tech NUS
Nick Brantley	Tech II	Tetra Tech NUS
Tory Smith	Tech I	Tetra Tech NUS

II. Work Performed

Cleanup of demo shot holes from 6/17/2011

One anomaly dug #173

All buried seed's in transects recovered and the IVS seed items dug up and all holes back filled.

III. Quality Control Activities (Reference/attach inspection/surveillance reports):

QC of the anomaly # 173 was completed and passed
Morning GPS QC 50 pdop 1.91 at 20 inches. QC 51 pdop 1.96 at 21 inches
Afternoon GPS QC 50 pdop 1.94 at 18 inches. QC 51 pdop 2.32 at 19 inches

IV. Problems Encountered / Corrective Actions Taken

None

V. Directions Given / Received:

None

VI. Special Notes / Lessons Learned

None

VII. Visitors

VIII. Approval

Name and Signature: Peter Dummitt	Title/Company: Safety/QC Tetra Tech	Date: 6/18/2011

Appendix B-3
Field Activity Daily Safety Log

TETRA TECH NUS, INC.

DATE	1/11/2011
NO.	1
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821
FIELD ACTIVITY SUBJECT: Work Plan and HASP & Site Preparation	
DESCRIPTION OF DAILY ACTIVITIES AND EVENTS: 0800 – 1200 Review of Sampling and Analysis Plan, Health and Safety Plan and filled out Medical Data Sheets, 1230 – 1730 Site visit and setting in survey control points.	
VISITORS ON SITE:	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Overcast cool 46* 10 – 20 mph winds	IMPORTANT TELEPHONE CALLS: None
PERSONNEL ON SITE: Ron Coleman, Pete Dummitt, Jacob Clement, Shaun Woods, Norm Piper, Fred Grosskoff, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermilo Navarro, Vicente Gonzalez, Johnny Aleman, Marcos Marcelino, Abrahim Nimroozi.	
SIGNATURE: Pete Dummitt	DATE: 1/11/2011

TETRA TECH NUS, INC.

DATE	1/12/2011
NO.	2
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Work Plan and HASP & Site Preparation

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700 - Daily Safety Briefing (Slip, trips & Falls, chainsaw safety, weed wacker safety, Ordnance avoidance.

0730 - Survey of transect (P1) started after base station set up.

0800 - Equipment checked out and started transect (P1).

0815 - 0825 Mr. A. Andrews NASCC Env. Nancy Mitton NASCC Env. Natural Resources and Chris Chesniss to talk about the brush cutting ops. How long is it going to take to cut transects, what to do with the wood chips, etc.

0835 - Stopped brush crew from cutting trees bigger than 2 inches.

0900 - 0910 CDR Jeff Kilion NAVFAC SE, Philip Dixon NAVFAC SE, Mark Stroop PWDCC, James Wallace FOAD and Keenan Harris on site to see what was going on at their facility.

1230 - Located some possible MPPEH. Items are marked with yellow survey flags. Area marked off with pink survey ribbon, this area is about 75'deep by 380' long, along the Perimeter Road starting at about transect P4 to transect P8 with most of the items concentrated around transect P5. Items found are about (25+) 3.5" rockets with fuzes attached to motors and the nose cone off warhead, (2) 40mm grenades gold ojive, (3) AN-M23 practice bomb, (15+) Pistol flares, (10+) CAD's (cartridge activated devices). These items will be inspected at a later date under an approved ESS. Brush cutting operations moved to other end of site to transect (P24). All notifications were made IAW Para 3 of the ESSDR dtd 07 Jan 2011.

1700 - transects 1, 2, 24 completed with 50% of transect 3 done.

VISITORS ON SITE: A. Andrews, Nancy Mitton, Chris Chesniss, CDR Jeff Kilion, Philip Dixon, Mark Stroop, James Wallace and Keenan Harris	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Overcast cool 43* 10 – 20 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Ron Coleman, Pete Dummitt, Jacob Clement, Shaun Woods, Norm Piper, Fred Grosskoff, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermilo Navarro, Vicente Gonzalez, Marcos Marcelino, Abrahim Nimroozi.

SIGNATURE: Pete Dummitt DATE: 1/12/2011

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY SAFETY LOG

DATE	1/13/2011
NO.	3
SHEET 1 OF 1	

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821
FIELD ACTIVITY SUBJECT: Work Plan and HASP & Site Preparation	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700 - Daily Safety Briefing (Slip, trips & Falls, chainsaw safety, weed wacker safety, Ordnance avoidance).

0730 - Survey of transect (23) started after base station set up.

0800 - Equipment checked out and started brush cutting transect (22).

1000 - 1030 Chris Chesniss, Danielle McDermitt, Cory Wilson, Gary LeFlore on site to see what was going and talk about ESS. Shown area were UXO items found.

1330 - Started brush chipping operation.

1600 - Dumped wood chips on fire brake #1 were Natural Resources said to dump them.

1650 - Brush cutting of transects 23, 22 completed with 50% of 21 done.

1700 - Secured for the day.

VISITORS ON SITE: Chris Chesniss, Danielle McDermitt, Cory Wilson, Gary LeFlore	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Overcast cool 47* 10 – 20 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jacob Clement, Shaun Woods, Norm Piper, Fred Grosskoff, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermilo Navarro, Vicente Gonzalez, Marcos Marcelino, Abrahim Nimroozi.

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY SAFETY LOG

DATE	1/14/2011
NO.	4
SHEET 1 OF 1	

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Work Plan and HASP & Site Preparation

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700 Daily Safety Briefing (Slip, trips & Falls, chainsaw safety, weed wacker safety, temp extremes, Ordnance avoidance).

0730 Survey of transects (18) started after base station set up.

0800 Equipment checked out and started brush cutting transect (22) and (21).

1500 started brush chipping operation.

1645 brush chipping operation secured.

1650 brush cutting of transects 21, 22 completed with 90% of 20 done.

1700 Secured for the day.

VISITORS ON SITE:	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Overcast cool some light drizzle 62* 5 – 10 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jacob Clement, Shaun Woods, Norm Piper, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermilo Navarro, Vicente Gonzalez, Marcos Marcelino, Abrahim Nimroozi.

SIGNATURE: Pete Dummitt DATE: 1/14/2011

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY SAFETY LOG

DATE	1/15/2011
NO.	5
SHEET 1 OF 1	

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Work Plan and HASP & Site Preparation

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700 Daily Safety Briefing (Slip, trips & Falls, chainsaw safety, weed wacker safety, temp extremes, Ordnance avoidance.)

Talked to SUXOS, Supervisor of brush crew and surveyor and all thought it would be better if we did not work today due to the weather, and see what Sunday brings.

0730 Canceled today's operations due to rain.

VISITORS ON SITE:	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Overcast Rain 62* 5 – 10 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jacob Clement, Shaun Woods, Norm Piper, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermilo Navarro, Vicente Gonzalez, Marcos Marcelino, Abrahim Nimroozi.

SIGNATURE: Pete Dummitt DATE: 1/15/2011

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY SAFETY LOG

DATE	1/16/2011
NO.	6
SHEET 1 OF 1	

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Work Plan and HASP & Site Preparation

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700 Daily Safety Briefing (Slip, trips & Falls, chainsaw safety, weed wacker safety, temp extremes, Ordnance avoidance.)

Talked to SUXOS, Supervisor of brush crew and the surveyor. It would be better to let the site dry out today due to the slippery conditions on the ground.

0730 Canceled today's operations due to rain.

VISITORS ON SITE:	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Overcast Rain ending PM 66* 5 – 10 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jacob Clement, Shaun Woods, Norm Piper, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermilo Navarro, Vicente Gonzalez, Marcos Marcelino, Abrahim Nimroozi.

SIGNATURE: Pete Dummitt DATE: 1/16/2011

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY SAFETY LOG

DATE	1/18/2011
NO.	8
SHEET 1 OF 1	

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Work Plan and HASP & Site Preparation

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700 Daily Safety Briefing (Slip, trips & Falls, chainsaw safety, weed wacker safety, temp extremes, Ordnance avoidance).

0730 Survey set up base station. Started on transects (11).

0800 Equipment checked out and started brush cutting transect (18).

1600 started brush chipping operation.

1645 brush chipping operation secured.

1648 Surveyed in transects 8, 9, 10, 11 and 15% of 7.

1650 brush cutting of transects 18 and 70% of17 completed.

1700 Secured for the day.

VISITORS ON SITE: Chris Cherniss and Danielle McDurmitt	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Overcast 68* 5 – 10 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jacob Clement, Shaun Woods, Norm Piper, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermilo Navarro, Vicente Gonzalez, Marcos Marcelino, Abrahim Nimroozi.

SIGNATURE: Pete Dummitt DATE: 1/18/2011

TETRA TECH NUS, INC.

DATE	1/19/2011
NO.	9
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Work Plan and HASP & Site Preparation

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700 Daily Safety Briefing (Slip, trips & Falls, chainsaw safety, weed wacker safety, temp extremes, Ordnance avoidance).

0730 Survey set up base station. Started on transects (7).

0800 Equipment checked out and started brush cutting transect (17).

0900 Transect (7) completed. Making all North/South lanes complete for Brush crew to work. Survey Crew starting to put in intermediate stakes in transects where brush cutting has been completed. This will divide the site into 50' squares.

1600 started brush chipping operation.

1645 brush chipping operation secured.

1648 Surveyed in transects 7 and put in intermediate stakes in transects 24, 23, 22, 21 and 20.

1650 brush cutting of transects 17 and 95% of16 completed.

1700 Secured for the day.

VISITORS ON SITE:	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Partly Coludy 67* 5 – 20 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jacob Clement, Shaun Woods, Norm Piper, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermilo Navarro, Vicente Gonzalez, Marcos Marcelino, Abrahim Nimroozi.

SIGNATURE: Pete Dummitt DATE: 1/19/2011

TETRA TECH NUS, INC.

DATE	1/20/2011
NO.	10
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Work Plan and HASP & Site Preparation

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700 Daily Safety Briefing (Slip, trips & Falls, chainsaw safety, weed wacker safety, temp extremes, Ordnance avoidance).

0730 Survey set up base station. Started on transects (19).

0730-0945 Jason Lopez received initial safety briefing and handed in his paper work. Ready for work on the 25th, He will be replacing one of the other Labors on Tuesday.

0800 Equipment checked out and started brush cutting transect (16).

1430 Brush cutting crew on transect (15) located a large active bee hive on the transect line. Believing that the vibration of the brush cutting equipment might aggravate the insects. Mr. Chris Cherniss (Naval Environmental Office NAS Corpus Christi) was informed and he told the SUXOS that he would notify the proper personnel and have the hazard either removed or destroyed. The brush crew moved to the East end of the work site

1600 started brush chipping operation.

1645 brush chipping operation secured.

1648 Surveyed in intermediate stakes in transects 19, 18, 17 and 16.

1650 brush cutting of transects 16, 3 and 80% of15 and 10% of transects 4, 5, 6, 7 and 8 completed.

1700 Secured for the day.

VISITORS ON SITE:	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Partly Cloudy 63* 5 – 20 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jacob Clement, Shaun Woods, Norm Piper, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermilo Navarro, Vicente Gonzalez, Marcos Marcelino, Abrahim Nimroozi, Jason Lopez.

SIGNATURE: Pete Dummitt DATE: 1/20/2011

TETRA TECH NUS, INC.

DATE	1/25/2011
NO.	11
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Work Plan and HASP & Site Preparation

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700 Daily Safety Briefing (Slip, trips & Falls, Insect protection and avoidance, Ordnance avoidance).

0700 Three new persons were given the safety brief Scott Roberts, Fred Grosskoff and Larry Basilio they will be taking samples at the Skeet Range that is adjacent to this work site.

0730 Survey set up base station. Started on putting in sample grids.

0740 Equipment checked out and started brush cutting transect (4 and 5).

1630 Surveyed in grid stakes at 50’ intervals on transects 3, 4 and 5, as well as 20% of transects 6, 7and 8 (North side of perimeter road). Sample grids 7, 8, 13, 14, 21, 22, 28, 29, 30, 35 and 36 were surveyed in.

1650 Brush cutting of transects 4 and 5 completed with 50% of 6 and 10% of 7 completed.

1700 Secured for the day.

Conferred with SOXOS, we feel that the brush crew can safely cut transects 8, 9 and 10 through the munitions area.

Brush cutting of transects 5, 6 and 7 through the munitions area should be cut by UXO personnel at a later date.

VISITORS ON SITE:	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Sunny 62* 10 – 20 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jacob Clement, Shaun Woods, Norm Piper, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermilo Navarro, Marcos Marcelino, Abrahim Nimroozi, Jason Lopez, Scott Roberts, Ferd Grosskoff and Larry Basilio.

SIGNATURE: Pete Dummitt DATE: 1/25/2011

TETRA TECH NUS, INC.

DATE	1/26/2011
NO.	12
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Work Plan and HASP & Site Preparation

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700 Daily Safety Briefing (Slip, trips & Falls, hydration, Ordnance avoidance).

0730 Survey set up base station. Started putting in grid stakes at 50' intervals on transects 1.

0740 Equipment checked out and started brush cutting transect (5) and the second brush crew were assigned to sampling crew at the old skeet range to clear a path to their sample site,

0900 Another bee hive was encountered and NASCC POC was called for action to be taken.

1130 Scott Roberts reassigned from UXO support for sampling crew to UXO support MRP Incinerator Disposal Site. He was given an in briefing and has signed the work plan and all paper work in order,

1630 Surveyed in grid stakes at 50' intervals on transects 0,1,2,6 and about 30% of 7 South of perimeter road.

1650 Brush cutting of transects 6 and 7 completed.

1700 Secured for the day.

VISITORS ON SITE: None	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Sunny 62* 5 – 10 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jacob Clement, Shaun Woods, Norm Piper, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermilo Navarro, Marcos Marcelino, Abrahim Nimroozi, Jason Lopez, Scott Roberts, Ferd Grosskoff and Larry Basilio.

SIGNATURE: Pete Dummitt DATE: 1/26/2011

TETRA TECH NUS, INC.

DATE	1/27/2011
NO.	13
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Work Plan and HASP & Site Preparation

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700 Daily Safety Briefing (Slip, trips & Falls, hydration, Proper tool maintenance, Ordnance avoidance).

0730 Survey set up base station. Started putting in sample grid stakes.

0740 Equipment checked out and started brush cutting transect (8 and 9)

1530 Maintenance on chemical toilets was performed.

1545 – 1640 All brush that was cut and pulled to the road was chipped.

1630 Surveyed in grid stakes at 50' intervals on transects 7 and 8. The grid stakes for sample grids 1, 2, 3, 9, 15, 16, 17, 24, 31 and 32 were put in.

1650 Brush cutting of transects 8 and 9 completed, with 25% of transect 10 and 10% of transect 11 done.

1700 Secured for the day.

VISITORS ON SITE: None	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Partly Cloudy 68* 5 – 10 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jacob Clement, Shaun Woods, Norm Piper, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermilo Navarro, Marcos Marcelino, Abrahim Nimroozi, Jason Lopez, Scott Roberts, Ferd Grosskoff and Larry Basilio.

SIGNATURE: Pete Dummitt DATE: 1/27/2011

TETRA TECH NUS, INC.

DATE	1/28/2011
NO.	14
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX

PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Work Plan and HASP & Site Preparation

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700 Daily Safety Briefing (Slip, trips & Falls, hydration, PPE, Ordnance avoidance).

0730 Survey set up base station. Started putting in stakes at 50' intervals on transects 9.

0740 Equipment checked out and started brush cutting transect (10)

1500 Constructed three road barriers to be utilized starting 01/29/2011.

1515 Additional MPPEH items located on transect 9. The items were marked for avoidance for brush crew.

1630 Surveyed in grid stakes at 50' intervals on transects 9.

1640 Brush cutting of transects 10completed, with 80% of transect 11 done.

1700 Secured for the day.

VISITORS ON SITE: None

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None

WEATHER CONDITIONS: Mostly Sunny 71* 5 – 10 mph winds

IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jacob Clement, Shaun Woods, Norm Piper, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermilo Navarro, Marcos Marcelino, Abrahim Nimroozi, Jason Lopez, Scott Roberts.

SIGNATURE: Pete Dummitt

DATE: 1/28/2011

TETRA TECH NUS, INC.

DATE	1/29/2011
NO.	15
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Work Plan and HASP & Site Preparation

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700 Daily Safety Briefing (Slip, trips & Falls, Keeping site clean, hydration, PPE, Ordnance avoidance).

0730 Survey set up base station. Started putting in stakes at 50' intervals on transects 10.

0740 Equipment checked out and started brush cutting transect (11)

1500 Constructed three road barriers to be utilized starting 01/29/2011.

1635 Surveyed in grid stakes at 50' intervals on transects 10.

1645 Brush cutting of transects 11 completed, with 20% of transect 12 and 10% of transect 13 done.

1700 Secured for the day.

VISITORS ON SITE: None	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Mostly Cloudy 71* 10 – 20 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jacob Clement, Shaun Woods, Norm Piper, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermilo Navarro, Marcos Marcelino, Abrahim Nimroozi, Jason Lopez, Scott Roberts.

SIGNATURE: Pete Dummitt DATE: 1/29/2011

TETRA TECH NUS, INC.

DATE	1/30/2011
NO.	16
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Work Plan and HASP & Site Preparation

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700 Daily Safety Briefing (Slip, trips & Falls, Keeping site clean, hydration, PPE, Ordnance avoidance).

0720 Survey set up base station. Started putting in stakes at 50' intervals on transects 11.

0730 Equipment checked out and started brush cutting transect (12 and 13)

1635 Surveyed in grid stakes at 50' intervals on transects 11.

1645 Brush cutting of transects 12 and 13 is about 90% done.

1700 Secured for the day.

VISITORS ON SITE: None	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Mostly Sunny 77* 10 – 20 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jacob Clement, Shaun Woods, Norm Piper, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermilo Navarro, Marcos Marcelino, Abrahim Nimroozi, Scott Roberts and Johnny Alerman.

SIGNATURE: Pete Dummitt DATE: 1/30/2011

TETRA TECH NUS, INC.

DATE	1/31/2011
NO.	17
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Work Plan and HASP & Site Preparation

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700 Daily Safety Briefing (Slip, trips & Falls, hydration, PPE, Ordnance avoidance).

0720 Survey set up base station. Started putting in stakes at 50' intervals on transects 12.

0730 Equipment checked out and started brush cutting transect (12 and 13)

1635 Surveyed in grid stakes at 50' intervals on transects 12 and 13. Also surveyed in sample grids 26 and 34.

1645 Brush cutting completed transects 12, 13 and 14.

1700 Secured for the day.

VISITORS ON SITE: None	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Mostly Sunny 77* 10 – 20 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jacob Clement, Shaun Woods, Norm Piper, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermilo Navarro, Marcos Marcelino, Abrahim Nimroozi, Scott Roberts and Johnny Alerman.

SIGNATURE: Pete Dummitt DATE: 1/31/2011

TETRA TECH NUS, INC.

DATE	2/1/2011
NO.	18
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Work Plan and HASP & Site Preparation

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700 Daily Safety Briefing (Slip, trips & Falls, hydration, PPE, Chipping operations, Ordnance avoidance).

0720 Survey set up base station. Started putting in stakes at 50' intervals on transects 14.

0730 Equipment checked out and started brush cutting transect (15)

0800 SUXOS and Brush crew Supervisor inspected all Transects to identify the ones that need touch up work.

0845 Brush cutting completed transects 15 to within 20ft of the bee's nest.

1625 Brush crew did touch up work in Transects 1, 3, 5, 8, 14, 18, 21, 22 and 23. And brush chipping was done to brush that was hauled to the road. With this work done the Brush crew was finished and departed the site

1630 Surveyed in grid stakes at 50' intervals on transects 14. Also surveyed in sample grids 5, 11 and 19. Surveyed in a primary and alternate IVS locations. When we are authorized to go intrusive, after the ESS is approved, per the work plan. Surveyor work completed; packed up gear and departed site.

1700 Secured for the day.

VISITORS ON SITE: Chris Cherniss and Gary Leflore	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Mostly Cloudy 68* 15 – 35 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jacob Clement, Shaun Woods, Norm Piper, Paul Supak, Martin Zapata, Jesus Garcia, Dan Davila, Rene Hernandez, Ermilo Navarro, Marcos Marcelino, Abrahim Nimroozi, Scott Roberts and Johnny Alerman.

SIGNATURE: Pete Dummitt DATE: 2/1/2011

TETRA TECH NUS, INC.

DATE	2/2/2011
NO.	19
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Work Plan and HASP & Site Preparation

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700 Daily Safety Briefing (Slip, trips & Falls, PPE, Ordnance avoidance).

0720 Started Transect sweep for Non-Munitions scrap.

1330 All transects were checked and all Non-Munitions scrap that could be removed, that would interfere with GEO survey to be conducted at a later date, was removed from the transects. Without an ESS in place some items that were seen on the surface had to be left in place because part of it was sub-surface.

1400 Secured for the day.

VISITORS ON SITE: None	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Mostly Cloudy 42* 25 – 35 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Jacob Clement, Shaun Woods, Norm Piper, Scott Roberts

SIGNATURE: Pete Dummitt DATE: 2/2/2011

TETRA TECH NUS, INC.

DATE	5/10/2011
NO.	01
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821
FIELD ACTIVITY SUBJECT: Incinerator MEC Survey	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0800 – 1200 Review of Sampling and Analysis Plan, Health and Safety Plan and filled out Medical Data Sheets,

1230 – 1730 Site visit. Safety Brief – slips, trips, and falls. Wildlife.

VISITORS ON SITE:	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Overcast 88* 15 – 25 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Norm Piper, Troy Smith.

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

DATE	5/11/2011
NO.	02
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Incinerator MEC Survey

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Wildlife in the area, safety in operating power equipment. Tape-up and Spray-up to prevent insect bites.

0730 – 0830 installed IVS. Team observed using proper Digging techniques

0845 - Started cutting vegetation from transects starting at number 1.

1100 – Stressed the importance of hydration.

1200 – UXO site manager Norm Piper departed site.

1530 – Secured field operations. Vegetation removed from transects 1,2,3,4 and 80% from 5 and 60% from 6

1600 – Secured for the day.

VISITORS ON SITE: None	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Overcast 88* 15 – 20 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Norm Piper, Tory Smith.

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

DATE	5/12/2011
NO.	03
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821
FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Wildlife in the area, safety in operating power equipment.

0615 - Started cutting vegetation from transects starting at number 6.

0900 – Proper brush cutting techniques employed. Proper PPE being worn.

1420 – Stopped field operations due to lighting within 3 miles of the work site all personnel in vehicles until approximately 1530

1530 – Secured field operations. Vegetation removed from transects 7, 8, 9 and 80% from 6 and 20% from 10, secured tools and equipment at the fire station.

1600 – Secured for the day.

VISITORS ON SITE: None	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Overcast 83* 10 – 20 mph winds rain in PM	IMPORTANT TELEPHONE CALLS: None
PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith.	
SIGNATURE: Pete Dummitt	DATE: 5/12/11

TETRA TECH NUS, INC.

DATE	5/13/2011
NO.	04
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Wildlife in the area, safety in operating power equipment. Heat stress and the importance of hydration.

0625 - Started cutting vegetation from transects starting at number 10.

0700 - Smiley Nava the Biologist arrived on site to check transects 14 through 24 for the bird survey. Gave tailgate safety brief

1050 – Smiley departed site. He found one nest in transect 16; he does not think it is active at this time. He will be back tomorrow with the proper equipment to check out the nest.

1100 – Reminded team to stay hydrated.

1330 – Proper brush cutting techniques being employed. Team leader observing from a safe distance.

1530 – Secured field operations. Vegetation removed from transects 10, 11, 12, 13 and 20% from 14. Secured tools and equipment at the fire station.

1600 – Secured for the day.

VISITORS ON SITE: Smiley Nava	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Overcast 92° 10 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith.

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

DATE	5/14/2011
NO.	05
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Reviewed Wildlife in the area, safety in operating power equipment. Inspected PPE and reviewed proper use for vegetation management.

0625 - Started cutting vegetation from transects starting at transect number 14.

0920 – Nick Brantley got stung by a bee in transect 16. No allergic reaction. Will Monitor.

1100 – Smiley Nava the Biologist arrived on site to check out one nest in transect 16.

1105 – Tailgate safety briefing given to Smiley Nava.

1130 – Smiley Nava found the nest abandoned, he disturbed the nest so others would not move in. We were cleared to continue operations, and then departed the site.

1450 – Seed planted in transect 1. Started surface sweep of transect with GA52Cx

1525 – Completed surface sweep of transect 1 with GA52Cx found 7 contacts and the surface seed. The remainder of the surface sweep of transect 1 will be on 05/15/2011.

1530 – Secured field operations. Vegetation removed from transects 14, 15, 16, 17, 18, 19 and 20% from 20. Secured tools and equipment at the fire station.

1600 – Secured for the day.

VISITORS ON SITE: Smiley Nava	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Overcast 92° 10 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith.

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

DATE	5/15/2011
NO.	06
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Wildlife in the area, safety in operating power equipment.

0625 - Started cutting vegetation from transects starting at number 20.

900 – Instructed Tory Smith to always remember to lower face shield while operating brush cutting equipment.

1000 – Reminded team to check and report any insect (Tick) bites. Importance of Tape-up and Spray-up method.

1350 – Surface Seeds planted in transects 1, 2, 3, 4, 6 and 7 Subsurface Seed planted in transect 1. Started surface sweep of transect with GA52Cx and White's all metal locator.

1430 – Secured field operations. Vegetation removed from transects 20, 24, 23 and 95% of 21 and 22. Secured tools and equipment at the fire station.

1525 – Completed surface sweep of transect 1 with GA52Cx found 31 contacts and the surface seed.

1600 – Secured for the day.

VISITORS ON SITE: None	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Mostly Sunny 83° 10 - 20 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith.

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

DATE	5/16/2011
NO.	07
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Slips trips and falls. Route to Hospital. Importance of Hydration and buddy system.

0625 – Started surface sweep of transect with GA52Cx and White's all metals locator. . Doing well.

1100 – Reminded team to be aware of surroundings (sharp stumps remain from Vegetation removal).

1315 – Observed all required PPE being worn properly.

1540 - Completed surface sweep of transects 2, 3, 4 and 8. Completed surface sweep of transects and 5, 6 and 7 except the known hazard area with Schonstedt GA 52Cx.

1600 – Secured for the day.

VISITORS ON SITE: Gary LeFlore PW Env., Christopher Cherniss PW Env.	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Mostly Sunny 83° 10 - 20 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith.

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY SAFETY LOG

DATE	5/17/2011
NO.	08
SHEET 1 OF 1	

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Slips trips and falls, covered the importance of hydration, PPE inspected.

0625 – Started surface sweep of transect with GA52Cx and White's all metal locator. Doing well.

0800 – Observed team wearing proper PPE. Working Safely.

1345 – Proper UXO safety techniques are being observed.

1530 - Completed surface sweep of transects 9, 10, 11, 12, 13 and 14 with GA52Cx found 1010 contacts and the (5) surface seeds.

1600 – Secured for the day.

VISITORS ON SITE: None	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Mostly Sunny 83° 10 - 20 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith, Frank Loney.

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

DATE	5/18/2011
NO.	09
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Slips trips and falls. Keep hydrated. Awareness of surroundings and wildlife.

0625 – Started surface sweep of transect 15 with GA52Cx and White's all metal locator. Doing well.

1300 – Good Hydration and proper PPE is being used.

1530 - Completed surface sweep of transects 15 and 16 with GA52Cx found the (2) surface seeds.

1600 – Secured for the day.

VISITORS ON SITE: None	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Mostly Cloudy 81° 10 - 20 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Troy Smith, Frank Loney.

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

DATE	5/23/2011
NO.	10
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Incinerator Site MC Survey

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Route to Hospital, Accident reporting, Wildlife - bobcat in area, snakes.

0700 – Daily Schonstedt and White's checked conducted all working good.

0725 – Started surface sweep of transect 15 with GA52 Cx and White's all metal locator. Transects 20 thru 24. Doing well.

0730 - Syd Rodgers was stung by a wasp. No allergic reaction. Will Continue to monitor.

0830 – Jim Coffman departed site to pick up Geo's instruments.

1000 – Started Geo testing at the IVS

1245 - Completed surface sweep of transects 20 thru 24 with GA52Cx found the (3) surface seeds in those transects.

1330 – 1530 - QC and UXO Team places the buried seeds in transects 17 thru 23.

1500 – 1700 – Transects 1 thru 8 were surveyed using a Type 858 magnetometer.

1730 – Secured for the day.

VISITORS ON SITE: Thomas Douglas and Arnold Burr NAVEODTD for QA audit.	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Mostly Cloudy 81° 10 - 20 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Tory Smith, Frank Loney, Jim Coffman.

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

DATE	5/24/2011
NO.	11
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821
FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Route to Hospital, tape-up and spray-up, drink plenty of water keep hydrated.

0630 – Daily Schonstedt and White's checked conducted all working good.

0645 – Started GPS of remaining seeds in transects 17 thru 24.

0730 – QA Audit being conducted.

0800 – Started Geo testing at the IVS.

0800 – Started QC of transects 1 thru 24

1245 - Completed QC of all transects

1300 – 1600 – Collecting MDAS/MPPEH info on Transect 5. See QC report. Monitor Heat Stress. All team is wearing proper PPE.

1100 – 1600 – Transects 9 thru 24 were surveyed using a Type 858 magnetometer.

1730 – Secured for the day.

VISITORS ON SITE: Thomas Douglas and Arnold Burr NAVEODTD for QA audit. Gary LeFlore And Chris Cherniss NAVFAC PW	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Mostly Sunny 89° 20 - 30 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith, Frank Loney, Jim Coffman, Thomas Douglas and Arnold Burr.

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

DATE	5/25/2011
NO.	12
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Accident reporting, Watch out for wildlife, drink plenty of water keep hydrated.

0630 – Daley Schonstedt and White's checked conducted all working.

0700 – QA Audit being conducted.

0800 – Started Geo testing at the IVS.

0810 – 1500 – Collecting MDAS info on Transect 6.

0900 – Reminded Bob Shauger to wear his gloves when investigating an item.

1000 – Gave safety brief to Tread Kissam and Brian Syme NAVFAC SE.

Discussed with crew Bees are active in transect 13 and 15. Crew remains vigilant.

1105 – Reminded crew about keeping hydrated. Heat index near 100°.

1100 – 1600 – Transects 1 thru 24 were surveyed using a EM 31 magnetometer.

1600 – Secured for the day.

VISITORS ON SITE: Thomas Douglas and Arnold Burr NAVEODTD for QA audit. Tread Kissam and Brian Syme NAVFAC SE	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Mostly Sunny 97° 10 - 20 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith, Frank Loney, Jim Coffman, Thomas Douglas and Arnold Burr.

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

DATE	5/26/2011
NO.	13
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Watch out for wildlife, drink plenty of water, keep hydrated.

0700 – Daily instrument's checked. All equipment functioning properly.

0700 – QA Audit being conducted.

0730 – Started Geo testing at the IVS.

0810 – 1400 – Collecting MDAS info on Transect 7.

0900 – Reminded Frank Loney to wear his safety glasses not to put them on top of your head.

1105 – Reminded crew about keeping hydrated. Heat index near 100°.

1100 – 1600 – Transects 17 thru 24 were surveyed using a EM 31 magnetometer.

1400 - QA Audit completed. No major findings noted.

1430 – Magazine area prepped for storage of MEC/MPPEH, and the Transportation Vehicle was set up for the transportation of items.

1430 -1530 Engineering controls were placed in four locations for demolition operations to be conducted on the 05/27/2011 all personnel using proper PPE.

1600 – Secured for the day.

VISITORS ON SITE: Thomas Douglas and Arnold Burr NAVEODTD for QA audit.	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Mostly Sunny 97° 10 - 20 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith, Frank Loney, Jim Coffman, Thomas Douglas and Arnold Burr.

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY SAFETY LOG

DATE	5/27/2011
NO.	14
SHEET 1 OF 1	

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821
FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Watch out for wildlife; drink plenty of water to keep hydrated.

0700 – Daily instrument's checked. All working.

0730 – Started Geo testing at the IVS.

0800 – 1000 – Site preparation for the (4) locations of the MEC items to be destroyed.

0900 – Received first shipment of explosives to be used today. Had to remind crew to chock the explosive truck before explosives are loaded on.

1205 – Second shipment of demo material arrived on site

0845 – 1345 – Transects 24 thru 13 were surveyed using an EM 61 magnetometer.

1355 - Fire Department on site to water down the four demo sites to reduce the risk of fire.

1400 – Demo brief given by Bob Shauger.

1430 – Demo sites sprayed with water to reduce the risk of fire

1430 -1530 Set firing lines for the four Demo shots, all personnel working safely.

1540 – Shot (1) went off.

1543 – Shot (2) went off.

1545 – Shot (3) went off.

1547 – Shot (4) went off.

1550 – Checked shot holes all clear. Fire Department also checked shots for anything that might be smoldering they gave their ok.

1620 – Cleanup shot was made.

1630 – Secured for the day.

VISITORS ON SITE: Michael Harbisen, Alex Baldems, Kirk Delgado NASCCFD AND Chris Cherniss and Gary LeFlore NAVFAC PW	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Mostly Sunny 94° 10 - 20 mph winds	IMPORTANT TELEPHONE CALLS: None
PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith, Frank Loney, Jim Coffman,	
SIGNATURE: Pete Dummitt	DATE:

TETRA TECH NUS, INC.

DATE	5/28/2011
NO.	15
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX

PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Transportation of explosives; drink plenty of water to keep hydrated. Importance of Heat monitoring and buddy system.

0700 – Daily instrument's check. All equipment working properly..

0730 – Started Geo testing at the IVS.

0800 – 1000 – Vegetation removal from the hazard area of transects 5 and 6. Team using proper PPE and equipment techniques.

0845 – 1345 – Transects 12 thru 1 were surveyed using an EM 61 magnetometer.

1200 – Temp in mid 90's high humidity personnel are keeping hydrated and working smart.

1400 – 1530 - transects 5 and 6 surveyed using an EM 31 magnetometer and the 858 magnetometer.

1600 – Secured for the day.

VISITORS ON SITE:

CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None

WEATHER CONDITIONS: Partly Cloudy 94° 10 - 30 mph winds

IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith, Frank Loney, Jim Coffman,

SIGNATURE: Pete Dummitt

DATE:

TETRA TECH NUS, INC.

DATE	5/29/2011
NO.	16
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821
FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700 – Tailgate safety briefing. Drink plenty of water to keep hydrated.

0730 – Started Geo testing at the IVS.

0800 – 1130 – Project Geophysicist and escort GPS in surface metal contacts.

1200 – Secured for the day.

VISITORS ON SITE:	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Partly Cloudy 90° 25 - 35 mph winds	IMPORTANT TELEPHONE CALLS: None
PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Tory Smith, Frank Loney, Jim Coffman,	
SIGNATURE: Pete Dummitt	DATE:

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY SAFETY LOG

DATE	5/31/2011
NO.	17
SHEET 1 OF 1	

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821
FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Watch out for wildlife; drink plenty of water to keep hydrated.

0700 – Daily instruments checked. All working. Personnel wearing proper PPE

0730 – 0945 – Logged location, information, and photos of MPPEH and MDAS items in transect 5. Personnel moving MDAS and MPPEH have on proper PPE and using proper lift techniques.

1000 – Secured for the day.

VISITORS ON SITE: None	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Mostly Cloudy 91° 15 - 25 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith, Frank Loney, Jim Coffman,

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY SAFETY LOG

DATE	6/4/2011
NO.	18
SHEET 1 OF 1	

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821
FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0800 – Tailgate safety briefing. Watch out for wildlife, Snakes etc. drink plenty of water to keep hydrated.

0830 – Gave safety brief to Smiley Nava, Biologist to check out transects for bird survey.

0900 – Observed crew using proper PPE. While reacquiring pick points.

0930 – Watched vehicle inspection for transportation of explosives. Done properly.

1130 – Reminded crew to drink plenty of water.

1200 - Smiley Nava departed site no safety concerns from birds.

1600 - Secured for the day.

VISITORS ON SITE: Smiley Nava	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Partly Cloudy 93° 15 - 25 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith, Frank Loney, Jim Coffman,

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

DATE	6/5/2011
NO.	19
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821
FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0800 – Tailgate safety briefing. Watch out for wildlife. Don't reach into culverts or holes before looking; drink plenty of water to keep hydrated.

0830 – All EZ barricades set up.

0845 –Reminded crew to tape-up and spray-up. Check for Ticks.

0915 – Watched vehicle inspection for transportation of explosives. Done properly.

1130 – Observed crew using proper PPE. While reacquiring pick points.

1230 – Reminded crew about Bee's in the transects.

1530 – Stopped field work for the day.

1600 - Secured for the day.

VISITORS ON SITE: None	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Partly Cloudy 93° 10-20 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith, Frank Loney, Jim Coffman,

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

DATE	6/6/2011
NO.	20
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Watch out for Bees. Be aware of heat stress; drink plenty of water to keep hydrated. Importance of buddy system on UXO site.

0630 – All EZ barricades set up.

0845 –Watched vehicle inspection for transportation of explosives. Done properly.

0900 - Observed crew using proper PPE. While reacquiring pick points.

0915 – Reminded crew to drink plenty of water.

1130 – Started construction of 4 additional road barriers at the magazine area. Using proper PPE

1230 – Reminded crew about Bee's on the site.

1330 – Stopped field work for the day. All EZ barricades taken down.

1400 - Secured for the day.

VISITORS ON SITE: Jim Rossi	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Mostly Sunny 95° 10-15 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith, Frank Loney, Jim Coffman,

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

DATE	6/7/2011
NO.	21
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Watch out for Bees. Don't reach into culverts or holes before looking; drink plenty of water to keep hydrated. Risk analyses taken on Doug Murray NOSSA Auditor in accordance with OPNAVINST 3500.39

0630 – All EZ barricades set up.

0800 – visitors on site safety briefed Brian Syme NAVFACSE and Tread Kissam NAVFACSE a Risk analyses taken in accordance with OPNAVINST 3500.39

0845 – Vehicle inspection for transportation of explosives. Done properly.

1100 - Doug Murray NOSSA Auditor, Jim Rossi, Brian Syme NAVFACSE and Tread Kissam NAVFACSE departed site inspection complete

Team digging flagged anomalies using proper UXO digging techniques and wearing proper PPE.

1340 – Stopped field operations removed EZ barricades for the day.

1400 – Secured for the day.

VISITORS ON SITE: Jim Rossi, Doug Murray NOSSA Auditor Brian Syme NAVFACSE and Tread Kissam NAVFACSE	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Mostly Sunny 95° 10-15 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith, Frank Loney, Jim Coffman,

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

DATE	6/8/2011
NO.	22
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821
FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Watch out for Wildlife, tape-up and spray-up to repel insects; drink plenty of water to keep hydrated.

Visitors on site safety briefed Gary LeFlore Base POC

0630 – All EZ barricades set up.

0645 – Vehicle inspection for transportation of explosives. Done properly.

Team digging flagged anomalies using proper UXO digging techniques and wearing proper PPE.

0800 – 1230 - Team located a burn tank dump site, about 16ft by 8ft in transect 5. Using proper UXO digging Techniques.

1300 – The team loaded (106) AN MK23 practice bombs and for transport to magazine and (300) 20mmTP for the MDAS drum.

1340 – Stopped field operations and removed EZ barricades for the day.

1400 – Secured for the day.

VISITORS ON SITE: Gary LeFfure PW Env	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Mostly Sunny 95° 10-15 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith, Frank Loney

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY SAFETY LOG

DATE	6/9/2011
NO.	23
SHEET 1 OF 1	

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821
FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Don't reach into culverts or holes before looking; drink plenty of water to keep hydrated.

Visitors on site safety briefed Chris Cherniss and Gary LeFlore PW Env Base POC

0630 – All EZ barricades set up.

0645 – Vehicle inspection for transportation of explosives. Done properly.

0700 – Starting clearing area for demo shots scheduled for tomorrow.

0800 – 1230 - Team digging flagged anomalies using proper dig techniques and wearing proper PPE.

1300 – (9) 20mmTP transported to the MDAS drum. Syd Rodgers and Pete Dummitt certified and placed them into the MDAS drum.

1340 – Stopped field operations and removed EZ barricades for the day.

1400 – Secured for the day.

VISITORS ON SITE: Chris Cherniss and Gary LeFfure PW Env	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Sunny 95° 15-25 mph winds	IMPORTANT TELEPHONE CALLS: None
PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith, Frank Loney	
SIGNATURE: Pete Dummitt	DATE:

TETRA TECH NUS, INC.

DATE	6/10/2011
NO.	24
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Watch out for wildlife; drink plenty of water to keep hydrated.

0630 – All EZ barricades set up.

0645 – Vehicle inspection for transportation of explosives. Done properly.

0700 – Daily instruments checked. All equipment working properly

0700 – 1100 - Team digging flagged anomalies using proper dig techniques and wearing proper PPE.

0930 – Received first shipment of explosives to be used today. Had to remind crew to chock the explosive truck before explosives are loaded on.

1130 – Second shipment of demo material arrived on site.

1130 – 1330 Shot preparation for the (5) locations of the MEC items to be destroyed.

1300 – Demo brief given by Bob Shauger

1430 - Fire Department on site to water down the four demo sites to reduce the risk of fire.

1440 – Demo sites sprayed with water to reduce the risk of fire

1400 -1500 Set firing lines for the five Demo shots, all personnel working safely.

1504 – Shot (1) went off.

1506 – Shot (2) went off.

1507 – Shot (3) went off.

1508 – Shot (4) went off.

1510 – Shot (5) went off.

1515 – Checked shot holes all clear.

1530 – Cleanup of demo site and putting away gear.

1630 – Secured for the day.

VISITORS ON SITE: Michael Harbisen, Alex Baldems, Kirk Delgado NASCCFD and Chris Cherniss and Gary LeFlore NAVFAC PW	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Mostly Sunny 93° 10 - 15 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith, Frank Loney

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

DATE	6/11/2011
NO.	25
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821
FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Watch out for wildlife; drink plenty of water to keep hydrated.

0620 – All EZ barricades set up.

0630 – Vehicle inspection for transportation of explosives. Done properly.

0640 – Daley instrument's checked. All working

0700 – 1300 – Checked debris from shot holes and placed in MDAS drum. Team wearing proper PPE.

1130 – 1330 – Checked contents of MDAS drum and moved 3 items to magazine for demil purposes.

1330 – Cleanup of demo site and putting away gear.

1400 – Secured for the day.

VISITORS ON SITE: None	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Mostly Sunny 93° 15 - 25 mph winds	IMPORTANT TELEPHONE CALLS: None
PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith, Frank Loney	
SIGNATURE: Pete Dummitt	DATE:

TETRA TECH NUS, INC.

DATE	6/12/2011
NO.	26
SHEET 1 OF 1	

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821
FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Drink plenty of water to keep hydrated.

0630 – All EZ barricades set up.

0645 – Vehicle inspection for transportation of explosives. Done properly.

0700 – 1330 - Team digging flagged anomalies using proper dig techniques and wearing proper PPE. Stressed importance of hydration to team.

1340 – Stopped field operations and removed EZ barricades for the day.

1400 – Secured for the day.

VISITORS ON SITE:	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Sunny 95° 15-25 mph winds	IMPORTANT TELEPHONE CALLS: None
PERSONNEL ON SITE: Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith, Frank Loney	
SIGNATURE: Pete Dummitt	DATE:

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY SAFETY LOG

DATE	6/13/2011
NO.	27
SHEET 1 OF 1	

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821
FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0600 – Tailgate safety briefing. Drink plenty of water to keep hydrated.

0630 – All EZ barricades set up.

0645 – Vehicle inspection for transportation of explosives. Done properly.

0700 – 1330 - Team digging flagged anomalies using proper dig techniques, wearing proper PPE, and using proper lifting techniques. Drinking plenty of water keeping hydrated.

1340 – Stopped field operations and removed EZ barricades for the day.

1400 – Secured for the day.

VISITORS ON SITE:	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Sunny 98° 10-15 mph winds	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith, Frank Loney

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY SAFETY LOG

DATE	6/16/2011
NO.	28
SHEET 1 OF 1	

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0900 – Tailgate safety briefing. Heat stress. Drink plenty of water to keep hydrated. Digging safety.

0930 – All EZ barricades set up.

0940 – Vehicle inspection for transportation of explosives. Done properly.

1000 – 1330 - Team flagging (4) additional anomalies and then digging flagged anomalies using proper dig and lifting techniques and wearing proper PPE. Drinking plenty of water keeping hydrated.

1330 -1630 – Set up demo sites for tomorrow.

1640 – Stopped field operations and removed EZ barricades for the day.

1700 – Secured for the day.

VISITORS ON SITE: None	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Sunny 96° 20-30 mph winds Heat index 106°	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

FIELD ACTIVITY DAILY SAFETY LOG

DATE	6/17/2011
NO.	29
SHEET 1 OF 1	

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821
FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0800 – Tailgate safety briefing. Watch out for wildlife; drink plenty of water to keep hydrated.

0830 – All EZ barricades set up.

0845 – Vehicle inspection for transportation of explosives. Done properly.

0930 – Received first shipment of explosives to be used today.

1030 – Second shipment of demo material arrived on site.

1030 – 1330 Shot preparation for the (3) locations of the MEC items to be destroyed.

1400 – Fire Department on site to water down the three demo sites to reduce the risk of fire.

1410 – Demo sites sprayed with water to reduce the risk of fire.

1415 –Demo brief given by Bob Shauger

1433 – Shot (1) went off.

1435 – Shot (2) went off.

1439 – Shot (3) went off.

1542 – Checked shot holes all clear.

1600 – 1730 - Cleanup of site and putting away gear.

1800 – Secured for the day.

VISITORS ON SITE: Chris Cherniss and Gary LeFlore NAVFAC PW	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Sunny 98° 20-30 mph winds Heat index 108°	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Bob Shauger, Nick Brantley, Tory Smith

SIGNATURE: Pete Dummitt DATE:

TETRA TECH NUS, INC.

DATE	6/18/2011
NO.	30
SHEET	1 OF 1

FIELD ACTIVITY DAILY SAFETY LOG

PROJECT NAME: NALF Cabaniss, Corpus Christi, TX	PROJECT NO: 112G01821

FIELD ACTIVITY SUBJECT: Incinerator Site MEC Survey

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

0700 – Tailgate safety briefing. Watch out for wildlife; drink plenty of water to keep hydrated.

0730 - Checked shot holes and started cleaning up metal residue using proper PPE.

0830 – 1100 - Team dug a flagged anomaly using proper dig techniques, wearing proper PPE, and using proper lifting techniques. Drinking plenty of water keeping hydrated. All EZ barricades removed. All buried seeds recovered. IVS removed.

1200 – Secured for the day.

VISITORS ON SITE: None	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS: None
WEATHER CONDITIONS: Sunny 96° 25-35 mph winds Heat index 106°	IMPORTANT TELEPHONE CALLS: None

PERSONNEL ON SITE: Syd Rodgers, Pete Dummitt, Nick Brantley, Tory Smith

SIGNATURE: Pete Dummitt DATE:

Appendix B-4
Target Excavation Field Tracking Form

TARGET EXCAVATION FIELD TRACKING FORM
MRP Incinerator Disposal Site
NALF Cabaniss
Corpus Christi, TX

Anomaly # / (Transect)	Instrument(s) for Target Reacquisition	Size of Excavation	Depth of Excavation	MEC/MPPEH Items		Non-Munitions Items	
				Number and Description	Weight	Number and Description	Weight
280 (1)	Schonstedt	12”	6”			Seed (B01)	2 lb
45 (4)	Schonstedt	12”	6”			Seed (B9)	2lb
12 (5)	Schonstedt	12”	4”			Seed (B06)	2lb
3 (7)	Schonstedt	30”	10”			Tire	25 lb
6 (13)	Schonstedt	12”	4”			Seed (B12)	2lb
10 (14)	Schonstedt	0”	0”			Seed (B13)	2lb
10 (14)	White	15”	2”			Soda Can	.06lb
8 (19)	Schonstedt	12”	4”			Seed (B20)	2lb
24 (23)	Schonstedt	12”	6”			Scrap Metal	2lb
24 (23)	Schonstedt	14”	6”			Scrap Metal	5lb
24 (23)	Schonstedt	16”	6”			Pipe ¾ x 6”	2lb
24 (23)	Schonstedt	18”	6”			Metal Plate 12”x14”x2”	15lb
24 (23)	Schonstedt	36”	6”			Hinge 18”	2lb
24 (23)	Schonstedt	36”	2”			Angle Iron 6”	1.5lb
24 (23)	Schonstedt	8”	1”			Asphalt 18”x22’	25lb
24 (23)	Schonstedt	8”	2”			Angle Iron 12”	3lb
24 (23)	Schonstedt	10”	4”			Metal 4” Dia	10lb
24 (23)	Schonstedt	2”to 36”	2”			Nails/Bolts	5lb
463 (11)	Schonstedt	14”	2”			Rebar 18”	1lb
468 (9)	Schonstedt	24”	1”			Sheet Metal 25”x25”	2lb
457 (1)	White	12”	6”			Bolt 4”	.50lb
465 (18)	Schonstedt	10”	2”			Hinge 2”x4”	.1lb
458 (2)	Schonstedt	30”	20”			Pipe ½ x36”	4lb
467 (2)	Schonstedt	18”	28”			Sheet Metal 24’	1lb
398 (2)	Schonstedt	14”	8”			Scrap Metal	1lb

TARGET EXCAVATION FIELD TRACKING FORM
MRP Incinerator Disposal Site
NALF Cabaniss
Corpus Christi, TX

Anomaly # / (Transect)	Instrument(s) for Target Reacquisition	Size of Excavation	Depth of Excavation	MEC/MPPEH Items		Non-Munitions Items	
				Number and Description	Weight	Number and Description	Weight
249 (4)	Schonstedt	36”	4”			Wire 18”	1lb
317 (5)	Schonstedt	5-6’	4-6”	106ea AN-MK23 Practice Bomb, 300ea 20 mm TP Projectiles, 5ea 2.75” Rocket War Heads	181lb		
299 (5)	See Anomaly #317 Both Picks turned into one big excavation	4’L x16’ W Total dig size	4-6”	(5ea) 2.75” Rocket War Head	11.5 lb		
147 (6)	Schonstedt	30”	13”			Wire Cable	1 lb
328 (7)	Schonstedt	36”	24”	(9 ea) 20 mm TP Projectiles	3lb	Scrap Metal 18”x24”	2lb
75 (7)	Schonstedt	20”	24”			Scrap Metal	1lb
285 (8)	Schonstedt	8”	1”			Barbed Wire	.5lb
274 (8)	Schonstedt	10”	1”			Barbed Wire	.5lb
115 (8)	Schonstedt	14”	6”			Concrete	Left in ground
117 (8)	Schonstedt	14”	6”			Concrete	Left in ground
108 (8)	Schonstedt	10”	6”			Concrete	Left in ground
52 (8)	Schonstedt	24”	30”			Cast Iron Pipe 6”	Left in ground
251 (9)	Schonstedt	10”	3”			Threaded Cap Pipe	4lb
213 (9)	Schonstedt	12”	10”			Sheet Metal	1lb
98 (9)	Schonstedt	14”	24”			Unknown	Beyond 2’ depth
330 (10)	Schonstedt	10”	8”			Wire	Fence Line
102 (10)	Schonstedt	10”	2”			Wire/Bolt 16”	1lb
43 (10)	Schonstedt	14”	6”			Caster	5lb
289 (11)	Schonstedt	36”	2”			Trash Pit	Left in ground
90 (12)	Schonstedt	18”	24”			Unknown	Below 2’ level

TARGET EXCAVATION FIELD TRACKING FORM
MRP Incinerator Disposal Site
NALF Cabaniss
Corpus Christi, TX

Anomaly # / (Transect)	Instrument(s) for Target Reacquisition	Size of Excavation	Depth of Excavation	MEC/MPPEH Items		Non-Munitions Items	
				Number and Description	Weight	Number and Description	Weight
134 (12)	Schonstedt	36"	6"			Fence Post ,Wire, Sheet Metal, Trash Pit	Unknown
161 (12)	Schonstedt	36"	4"			Trash Pit	Left in ground
365 (12)	Schonstedt	20"	2"			Safety Glass	Left in ground
158 (12)	Schonstedt	36"	4"			Trash Pit	Left in ground
305 (13)	Schonstedt	30"	6"			Sheet Metal 12"x18"	3lb
234 (13)	Schonstedt	14"	4"			Pipe 3/8 x24"	2lb
205 (13	Schonstedt	20"	4"			Drive Shaft	20lb
149 (13)	Schonstedt	36"	16"			Trash Pit	Left in ground
105 (13)	Schonstedt	20"	24"			Brick	1lb
19 (23)	Schonstedt	36"	8"			Red Brick & Pipe	2lb
17 (23)	Schonstedt	36"	6"			Concrete & Wire	25lb
14 (23)	Schonstedt	36"	10"			Concrete	28lb
28 (20)	Schonstedt	60"	48"			No Contact	
39 (13)	Schonstedt	60"	48"			No Contact	
44 (15)	Schonstedt	10"	3"			Seed B-10	
124 (15)	Schonstedt	26"	12"			Trash Pit	Left in Ground
431 (15)	Schonstedt	Surface	Surface			Concrete Fence Post	Left in Ground
416 (14)	Schonstedt	10"	2"			Concrete Fence Post	Left in Ground
265 (14)	Schonstedt	36"	12"			Concrete & Rebar	Left in Ground
239 (14)	Schonstedt	36"	24"			Trash Pit	Left in Ground
238 (14)	Schonstedt	36"	24"			Trash Pit	Left in Ground
354 (16)	Schonstedt	36"	20"			Pipe 4"x5" (4ea)	Left in Ground
339 (16)	Schonstedt	30"	16"			Concrete	Left in Ground
181 (16)	Schonstedt	36"	18"			Pipe 4"x5"	Left in Ground
349 (17)	Schonstedt	30"	10"			Sheet Metal	Left in Ground
456 (18)	Schonstedt	Surface	Surface			Concrete Fence Post	Left in Ground
335 (18)	Schonstedt	20"	10"			Bolt 18" (2ea)	1lb
437 (19)	Schonstedt	10"	10"			Bolt 3" x ¼"	1lb
412 (19)	Schonstedt	Surface	Surface			Concrete	Left in Ground
452 (20)	Schonstedt	12"	8"			Fence Post	Left in Ground
420 (10)	Schonstedt	10"	4"			Concrete	Left in Ground
279 (20)	Schonstedt	6'	2'			No Contact	
296 (20)	Schonstedt	6'	2'			No Contact	
376 (21)	Schonstedt	10"	6"			Concrete & Piper	Left in Ground

TARGET EXCAVATION FIELD TRACKING FORM
MRP Incinerator Disposal Site
NALF Cabaniss
Corpus Christi, TX

Anomaly # / (Transect)	Instrument(s) for Target Reacquisition	Size of Excavation	Depth of Excavation	MEC/MPPEH Items		Non-Munitions Items	
				Number and Description	Weight	Number and Description	Weight
391 (22)	Schonstedt	10”	8”			Concrete Fence Post	Left in Ground
306 (22)	Schonstedt	12”	10”			Bolt & Pad Lock	1lb
297 (22)	Schonstedt	10”	6”			Scrap Metal	1lb
270 (24)	Schonstedt	30”	24”			Concrete	Left in Ground
189 (24)	Schonstedt	36”	8”			Rebar	2lb
169 (24)	Schonstedt	10”	4”			Barb-Wire	1lb
244 (5)	Schonstedt	18”	2”	(1ea)2.75” Rocket War Head,(1ea) Mk-23 Practice Bomb, (4ea) 20 mm Projectile	8lbs	Contact extends 25’ N to original Digs	
329 (6)	Schonstedt	20”	2”	1 ea) 2,75” Rocket War Head, (1ea) MK-23 Practice Bomb,(1ea) Venturi 2.25” Rocket Motor		Contact extends out	
243 (6)	Schonstedt	Surface	Surface			Burn Pit debris Ordnance components, continuation of Pick #42 (also noted as burn pit) Components recovered: (2ea) 20mm TPT, (5ea) CAD Devises, (3ea) CAD shipping containers(Tin Cans)(10ea) expended small arms cartridge cases All items declared as MDAS	1.75lbs
171 (13)	Schonstedt	Surface	Surface			30 Gal Drum (empty),Parts of old wringer type washing machine	25 lb
173 (7)	Schonstedt	24”	24”			Old Butter Knife	.25 lb

Appendix B-5
MEC Accountability Log

MEC ACCOUNTABILITY LOG

MEC Data

Report No.	Item	Category (UXO, Practice, etc.)	Found (Date)	Location	Disposition	Photo Ref	Disposition Date
25	40mm Grenade	UXO	1/12/11	N 17143028.59 E1328839.93	BIP	DSCN0035	5/27/11
26	40mm Grenade	UXO	1/12/11	N 17143012.45 E1328855.17	BIP	DSCN0036	5/27/11
27	2.75" Rocket War Head	MEC	5/16/11	N 17143043.01 E 1328713.01	Treated with explosives	DSCN0033	6/10/11
28	37mm Projectile	MEC	5/16/11	N 17142961.05 E 1328915.13	BIP	DSCN0037	5/27/11
29	AN-MK23 Practice Bomb	MEC	5/24/11	N 17143059.40 E 1328761.87	Treated with explosives	DSCN0050	6/10/11
31	AN-MK23 Practice Bomb	MEC	5/24/11	N 17143634.47 E 1328760.10	Treated with explosives	DSCN0052	6/10/11
32	AN-MK23 Practice Bomb	MEC	5/24/11	N 17143030.14 E1328758.54	Treated with explosives	DSCN0053	6/10/11
34	AN-MK23 Practice Bomb	MEC	5/24/11	N 17143029.35 E 1328756.93	Treated with explosives	DSCN0055	6/10/11
38	2.75" Rocket War Head	MEC	5/24/11	N 17143026.48 E 1328758.58	Treated with explosives	DSCN0059	6/10/11
39	2.75" Rocket War Head	MEC	5/24/11	N 17143026.48 E1328758.58	Treated with explosives	DSCN0059	6/10/11

MEC ACCOUNTABILITY LOG

MEC Data

Report No.	Item	Category (UXO, Practice, etc.)	Found (Date)	Location	Disposition	Photo Ref	Disposition Date
58	AN-MK23, Practice Bomb	MEC	5/28/11	N 17143034.18 E1328763.47	Treated with explosives	DSCN0085	6/10/11
60	AN-MK23, Practice Bomb	MEC	5/28/11	N 17143023.16 E 1328759.43	Treated with explosives	DSCN0088	6/10/11
61 & 62	2.75" Rocket War Head (**2ea**)	MEC	5/28/11	N 17143009.10 E 1328760.62	Treated with explosives	DSCN0089	6/10/11
63	AN-MK23, Practice Bomb	MEC	5/31/11	N 17143003.26 E 1328761.35	Treated with explosives	DSCN0090	6/10/11
64	AN-MK23 Practice Bomb	MEC	5/31/11	N17142996.34 E 1328763.05	Treated with explosives	DSCN0091	6/10/11
65	2.75" Rocket War Head	MEC	5/31/11	N 17142996.34 E 1328763.05	Treated with explosives	DSCN0092	6/10/11
70	AN-MK-23 Practice Bomb (**106ea**)	MEC	6/8/11	N17143034.56 E132870.91	Treated with explosives	DSCN0096	6/10/11 (5ea) 6/17/11 (101)
71	2.75" Rocket War Head (5ea)	MEC	6/8/11	N17143022.37 E1328759.03	Treated with explosives	DSCN0102	6/10/11
73	(1ea) 2.75" Rocket War Head, (**1ea**) Mk-23 Practice bomb	MEC	6/16/11	N17143000.57 E1328762.49	Treated with explosives	DSCN0123	6/17/11
74	3.5" Rocket (**3ea**)	MEC	5/25/11	N17143031.63 E1328810.36	Treated with Explosives	DSC061	6/17/11

	MEC ACCOUNTABILITY LOG						
MEC Data							
Report No.	**Item**	**Category (UXO, Practice, etc.)**	**Found (Date)**	**Location**	**Disposition**	**Photo Ref**	**Disposition Date**
Log Verification							
SUXOS Signature: Syd Rodgers Syd Rodgers					Date: 6/18/11		

Appendix B-6
MDAS Addition Form

MDAS Addition Form for
Container # 01
Seal/Key # 3869036 / 5303

NO.	Description/NIIN	Quantity	Type of Treatment*
1	2.75 inch rocket fins	9	
2	CAD's	55	
3	Rifle Grenade Boom	1	
4	AN-MK23 practice bomb	28	
5	3.5 inch Rocket's	7	
6	40mm fuze components	7	
7	40mm cartridge cases	6	
8	40mm practice shapes	5	
9	2.75 inch rocket warhead (M151 shape)	5	
10	2.25 inch rocket venture	19	
11	2.25 inch rocket ojive	3	
12	2.25 inch rocket motors	7	
13	20mm cartridge cases	96	
14	20mm TP projectiles	313	
15	Scrap metal from treated MEC & MPPEH items	120 pounds	

* If applicable

"This certifies that the material potentially presenting an explosive hazard listed has been 100 percent properly inspected and to the best of our knowledge and belief, is inert and/or free of explosives or related materials"

CERTIFIER PRINTED NAME Syd Rodgers
SIGNATURE Syd Rodgers DATE 06 July 2011
POSITION SUXOS
ORGANIZATION NAME Tetra Tech NUS
ORGANIZATION ADDRESS 2171 West Park Court, Stone Mountain GA
ORGANIZATION PHONE NUMBER (770) 413-0965

VERIFIER PRINTED NAME Peter Dummitt
SIGNATURE Peter Dummitt DATE 06 July 2011
POSITION SSO/QC Officer
ORGANIZATION NAME Tetra Tech NUS
ORGANIZATION ADDRESS 2171 West Park Court, Stone Mountain GA
ORGANIZATION PHONE NUMBER (770) 413-0965

Appendix B-7
Field Change Request Forms

FIELD CHANGE REQUEST (FCR)

CONTRACT TASK ORDER NAME: MEC UFP-SAP	CTO # 0135	CHANGE REQUEST NO. 02
TO: Incinerator Disposal Site MEC Remedial Investigation	LOCATION: NALF Cabaniss, Corpus Christi, TX	DATE: 04 June, 2011

RE:

Drawing # ________ Title: ________

Specific Sections: WS 17 Title: UFP-SAP for MEC

Other: ________

1. DESCRIPTION : No Donor Explosives will be stored on site. All Donor Explosives will be ordered on an as need basis. All Donor explosives will be consumed on the day of delivery. Only one Type 2 storage magazine will require grounding to be used for MEC/MPPEH storage.

2. REASON FOR CHANGE:

Policy Change by NALF Cabaniss to no longer allow the storage of Donor Explosives on site.

3. RECOMMENDED DISPOSITION (Submit sketch, if applicable):

_x_ Minor Change ____ Major Change (Impacts Cost, Schedule)

4. DISPOSITION: (Approval Required by Client Representative)

____ Not Approved (give reason).

_x_ Considered minor change – APPROVED per recommended disposition – Documents will not be formally revised. Field office to maintain as –built records.

____ Considered major change – Client approval required via contract modification process

Prepared by (Signature)	Date: 04 June, 2011
Tetra Tech UXO Manager (Signature) Ralph Brooks	Date: 04 June, 2011
Tetra Tech Project Manager (Signature)	Date:
Navy Point of Contact / Client Representative (Signature)	Date: 09 June 2011

FIELD CHANGE REQUEST (FCR)

CONTRACT TASK ORDER NAME: MEC UFP-SAP	CTO # 0135	CHANGE REQUEST NO. 03
TO: Incinerator Disposal Site MEC Remedial Investigation	LOCATION: NALF Cabaniss, Corpus Christi, TX	DATE: 07 June, 2011

RE:

Drawing # ______________ Title: ______________

Specific Sections: WS 17 Para. 10.8 Title: UFP-SAP for MEC

Other: ______________

1. DESCRIPTION: Corrected IVS seed burial depth. Changed IVS seed burial depth to "ISOs used to construct the IVS".

2. REASON FOR CHANGE: Data error. Correlate with Explosive Safety Submission IVS seed depths.

3. RECOMMENDED DISPOSITION (Submit sketch, if applicable):

__x__ Minor Change ______ Major Change (Impacts Cost, Schedule)

4. DISPOSITION: (Approval Required by Client Representative)

______ Not Approved (give reason).

__x__ Considered minor change – APPROVED per recommended disposition – Documents will not be formally revised. Field office to maintain as –built records.

______ Considered major change – Client approval required via contract modification process

Prepared by (Signature)	Date: 07 June, 2011
Tetra Tech UXO Manager (Signature) Ralph Brooks	Date: 07 June, 2011
Tetra Tech Project Manager (Signature)	Date:
Navy Point of Contact / Client Representative (Signature)	Date:

FIELD CHANGE REQUEST (FCR)

CONTRACT TASK ORDER NAME: MEC UFP-SAP	**CTO #** 0135	**CHANGE REQUEST NO.** 04
TO: Incinerator Disposal Site MEC Remedial Investigation	**LOCATION:** NALF Cabaniss, Corpus Christi, TX	**DATE:** 07 June, 2011

RE:

Drawing # ____________________ Title: ______________________

Specific Sections: WS 17 Para. 14 Title: UFP-SAP for MEC

Other: ______________________

1. DESCRIPTION: Add statement for intrusive operations to read "All excavations will be filled by the conclusion of each day's field activities".

2. REASON FOR CHANGE: Enables Dig team to continue intrusive investigations without having to pause operations until UXOQC has performed his check on the current excavation prior to backfilling. Backfilling each QC'd intrusive location will take place before the end of daily operations.

3. RECOMMENDED DISPOSITION (Submit sketch, if applicable):

__x__ Minor Change ____ Major Change (Impacts Cost, Schedule)

4. DISPOSITION: (Approval Required by Client Representative)

____ Not Approved (give reason).

__x__ Considered minor change – APPROVED per recommended disposition – Documents will not be formally revised. Field office to maintain as –built records.

____ Considered major change – Client approval required via contract modification process

Prepared by (Signature) [signature]	**Date: 07 June, 2011**
Tetra Tech UXO Manager (Signature) Ralph Brooks	**Date: 07 June, 2011**
Tetra Tech Project Manager (Signature)	**Date: 07 June, 2011**
Navy Point of Contact / Client Representative (Signature)	**Date:**

FIELD CHANGE REQUEST (FCR)

CONTRACT TASK ORDER NAME: MEC UFP-SAP	**CTO #** 0135	**CHANGE REQUEST NO.** 05
TO: Incinerator Disposal Site MEC Remedial Investigation	**LOCATION:** NALF Cabaniss, Corpus Christi, TX	**DATE:** 07 June, 2011

RE:

Drawing # ____________ Title: ____________

Specific Sections: WS 6 pg. 22 Title: UFP-SAP for MEC

Other: ____________

1. DESCRIPTION: Replace Munitions and Explosives of Concern Procedure Cell with " Within 30 minutes the SUXOS will report MEC/MPPEH in accordance with MRP SOP 03 to the TtNUS UXO Manager, TtNUS TOM and Navy POC." Tetra Tech Management will verbally Notify the Navy RPM on the same day.

2. REASON FOR CHANGE: Better congruence between WS 6, WS 17 and DDESB approved ESS.

3. RECOMMENDED DISPOSITION (Submit sketch, if applicable):

_x_ Minor Change ____ Major Change (Impacts Cost, Schedule)

4. DISPOSITION: (Approval Required by Client Representative)

____ Not Approved (give reason).

_x_ Considered minor change – APPROVED per recommended disposition – Documents will not be formally revised. Field office to maintain as –built records.

____ Considered major change – Client approval required via contract modification process

Prepared by (Signature)	**Date: 07 June, 2011**
Tetra Tech UXO Manager (Signature) Ralph Brooks	**Date: 07 June, 2011**
Tetra Tech Project Manager (Signature)	**Date: 07 June, 2011**
Navy Point of Contact / Client Representative (Signature)	**Date:**

FIELD CHANGE REQUEST (FCR)

CONTRACT TASK ORDER NAME: MEC UFP-SAP	**CTO #** 0135	**CHANGE REQUEST NO.** 06
TO: Incinerator Disposal Site MEC Remedial Investigation	**LOCATION:** NALF Cabaniss, Corpus Christi, TX	**DATE:** 07 June, 2011

RE:

Drawing # ____________________ Title: ______________________

Specific Sections: WS 17 ____________ Title: UFP-SAP for MEC

Other: ______________________

1. DESCRIPTION : Corrected IVS seed burial depth. Changed from (6", 13" and 20") to (4", 8", and 16") respectively.

2. REASON FOR CHANGE:

Data error. Changed IVS seed burial depth to correlate with Explosive Safety Submission IVS seed depths.

3. RECOMMENDED DISPOSITION (Submit sketch, if applicable):

__x__ Minor Change ______ Major Change (Impacts Cost, Schedule)

4. DISPOSITION: (Approval Required by Client Representative)

_____ Not Approved (give reason).

__x__ Considered minor change – APPROVED per recommended disposition – Documents will not be formally revised. Field office to maintain as –built records.

_____ Considered major change – Client approval required via contract modification process

Prepared by (Signature)	**Date: 07 June, 2011**
Tetra Tech UXO Manager (Signature) Ralph Brooks	**Date: 07 June, 2011**
Tetra Tech Project Manager (Signature)	**Date:**
Navy Point of Contact / Client Representative (Signature)	**Date:**

Appendix C
Digital Geophysical Mapping Field Forms and QC Test Results

Appendix C-1
DGM Anomaly Lists – Tables C-1 and C-2

TABLE C-1 - G-858 Anomaly (Target) List in NAD83 Texas South US survey ft

Target_ID	Easting	Northing	G-858G Vertical Gradient Response (nT)	Half-width (feet)	Intrusively Investigated (Y/N)
1	1328860.207	17142451.03	94.99	4.85	N
2	1328860.207	17142453.13	157.37	5.94	N
3	1328860.207	17142454.18	117.35	5.83	Y
4	1328860.207	17142455.23	145.28	5.70	N
5	1328860.207	17142456.28	133.89	5.94	N
6	1329161.774	17142461.53	31.32	5.54	Y
7	1329161.774	17142462.58	41.43	5.94	N
8	1329462.291	17142517.22	18.88	4.29	Y
9	1329462.291	17142518.27	18.62	3.78	N
10	1329212.211	17142523.53	20.80	4.20	Y
11	1329212.211	17142524.58	20.32	5.07	N
12	1328761.436	17142544.54	14.40	5.74	Y
13	1328761.436	17142545.59	17.82	5.07	N
14	1329661.935	17142550.85	75.46	5.90	Y
15	1329661.935	17142551.9	66.15	5.74	N
16	1329660.884	17142563.46	32.85	5.16	N
17	1329660.884	17142570.81	57.55	4.20	Y
18	1329660.884	17142571.86	48.43	4.45	N
19	1329661.935	17142576.07	19.15	5.37	Y
20	1329661.935	17142577.12	22.33	4.20	N
21	1329659.833	17142634.91	500.28	4.20	N
22	1329659.833	17142635.96	476.13	5.67	N
23	1329659.833	17142637.01	426.28	5.57	N
24	1329659.833	17142638.06	449.56	5.07	Y
25	1329658.782	17142647.52	229.50	4.80	N
26	1329658.782	17142648.57	252.30	3.59	N
27	1329560.011	17142649.62	12.37	4.35	N
28	1329508.524	17142660.13	1118.19	2.69	Y
29	1329509.575	17142660.13	1198.38	5.63	N
30	1329261.596	17142671.68	16.20	5.07	N
31	1329361.418	17142671.68	27.46	5.07	N
32	1329362.469	17142671.68	30.76	3.59	N
33	1329261.596	17142672.74	15.21	5.45	N
34	1328809.771	17142674.84	56.43	3.57	N
35	1328810.821	17142674.84	58.86	4.20	N
36	1329012.567	17142696.9	70.91	4.20	N
37	1329012.567	17142697.95	59.24	4.91	N
38	1329162.825	17142717.92	13.86	4.20	N
39	1329162.825	17142718.97	13.94	4.68	Y
40	1328960.029	17142726.32	102.46	5.29	N
41	1328960.029	17142727.37	105.56	5.31	N
42	1329010.465	17142741.03	36.10	3.93	N
43	1329011.516	17142741.03	42.69	5.94	Y
44	1329260.545	17142750.49	14.26	5.07	Y
45	1328709.949	17142756.8	14.65	3.61	Y
46	1328710.999	17142756.8	15.56	4.20	N
47	1329010.465	17142759.95	15.62	5.94	N
48	1329010.465	17142761	16.33	5.07	N
49	1329010.465	17142768.35	51.37	4.17	N
50	1329011.516	17142768.35	52.05	4.67	N
51	1329061.952	17142776.76	373.60	5.40	N
52	1328911.694	17142777.81	954.59	4.55	Y
53	1329061.952	17142777.81	407.24	5.07	N
54	1328911.694	17142778.86	917.59	5.04	N
55	1329010.465	17142784.12	172.78	5.46	N
56	1329011.516	17142784.12	161.08	4.52	N
57	1328810.821	17142787.27	289.47	5.69	N
58	1328810.821	17142788.32	237.99	5.94	N
59	1328911.694	17142792.52	232.83	4.32	N

TABLE C-1 - G-858 Anomaly (Target) List in NAD83 Texas South US survey ft

Target_ID	Easting	Northing	G-858G Vertical Gradient Response (nT)	Half-width (feet)	Intrusively Investigated (Y/N)
60	1328911.694	17142793.57	234.38	3.69	N
61	1329060.902	17142793.57	179.75	5.94	N
62	1329060.902	17142794.62	179.41	5.37	N
63	1328911.694	17142798.83	204.79	4.32	N
64	1328912.745	17142798.83	215.20	5.07	N
65	1328861.258	17142810.38	53.24	4.66	N
66	1328861.258	17142811.44	46.25	5.81	N
67	1328862.308	17142818.79	96.02	5.37	N
68	1328862.308	17142819.84	95.81	5.94	Y
69	1328862.308	17142820.89	109.40	4.70	N
70	1328862.308	17142821.94	104.42	3.45	N
71	1328962.13	17142824.04	25.14	4.20	N
72	1329256.342	17142824.04	31.57	3.54	N
73	1328962.13	17142825.1	25.92	5.13	N
74	1329256.342	17142825.1	31.69	4.15	N
75	1328862.308	17142830.35	41.82	2.99	Y
76	1328863.359	17142830.35	44.80	5.07	N
77	1329362.469	17142831.4	13.20	4.53	N
78	1329258.444	17142832.45	44.01	3.61	N
79	1329362.469	17142832.45	13.88	5.07	N
80	1329611.498	17142836.65	68.39	4.61	N
81	1329611.498	17142837.7	54.38	4.86	N
82	1328862.308	17142838.76	36.98	5.36	N
83	1328861.258	17142839.81	36.00	3.64	N
84	1328913.796	17142841.91	12.69	5.16	N
85	1329012.567	17142842.96	37.75	5.58	N
86	1329012.567	17142844.01	38.67	5.09	N
87	1328862.308	17142847.16	53.40	5.07	N
88	1328862.308	17142848.21	47.70	5.94	N
89	1329111.338	17142849.26	61.39	5.44	N
90	1329111.338	17142850.31	63.46	4.43	Y
91	1328913.796	17142851.36	75.33	5.47	N
92	1328913.796	17142852.41	80.98	5.07	N
93	1328961.08	17142859.77	123.79	4.04	N
94	1328962.13	17142859.77	131.99	4.20	N
95	1329061.952	17142868.18	145.58	5.59	N
96	1329063.003	17142868.18	151.76	5.94	N
97	1329064.054	17142868.18	146.41	5.67	N
98	1328963.181	17142870.28	170.96	4.84	Y
99	1328962.13	17142876.58	132.28	5.94	N
100	1328962.13	17142877.63	153.23	5.94	N
101	1328962.13	17142878.68	105.85	5.31	N
102	1329012.567	17142882.89	14.76	3.20	Y
103	1328862.308	17142883.94	14.97	4.53	N
104	1329012.567	17142883.94	13.98	3.74	N
105	1329163.876	17142883.94	61.58	5.68	Y
106	1328862.308	17142884.99	14.84	5.85	N
107	1329162.825	17142884.99	61.85	3.24	N
108	1328914.846	17142889.19	47.45	5.33	Y
109	1328914.846	17142890.24	46.55	5.94	N
110	1328914.846	17142891.29	45.71	5.94	N
111	1328914.846	17142892.34	46.54	5.94	N
112	1329110.287	17142892.34	438.58	3.42	N
113	1329111.338	17142892.34	502.39	5.07	N
114	1328914.846	17142893.39	46.84	5.11	N
115	1328913.796	17142894.45	41.59	3.21	Y
116	1328913.796	17142898.65	46.49	3.93	N
117	1328913.796	17142899.7	49.15	4.20	Y
118	1328913.796	17142900.75	46.75	4.24	N

TABLE C-1 - G-858 Anomaly (Target) List in NAD83 Texas South US survey ft

Target_ID	Easting	Northing	G-858G Vertical Gradient Response (nT)	Half-width (feet)	Intrusively Investigated (Y/N)
119	1329262.647	17142900.75	1048.43	4.20	N
120	1329308.88	17142900.75	60.55	5.94	N
121	1329061.952	17142901.8	1085.21	5.34	N
122	1329063.003	17142901.8	1038.37	3.35	N
123	1329163.876	17142901.8	169.15	5.94	N
124	1329262.647	17142901.8	986.03	5.94	Y
125	1329308.88	17142901.8	59.05	5.94	N
126	1329163.876	17142902.85	165.67	5.83	N
127	1329308.88	17142902.85	64.56	5.86	N
128	1328961.08	17142903.9	74.26	5.94	N
129	1329308.88	17142903.9	74.47	4.23	N
130	1328961.08	17142904.95	73.02	5.82	N
131	1329110.287	17142908.11	203.20	5.07	N
132	1329110.287	17142909.16	190.42	5.94	N
133	1329164.927	17142909.16	55.29	4.20	N
134	1329110.287	17142911.26	166.30	5.94	Y
135	1329110.287	17142912.31	144.48	5.07	N
136	1329260.545	17142918.61	108.26	5.07	N
137	1329260.545	17142919.66	105.13	5.94	N
138	1329010.465	17142924.92	172.99	5.84	N
139	1329010.465	17142925.97	175.83	4.20	N
140	1329163.876	17142928.07	66.76	4.01	N
141	1329164.927	17142928.07	69.49	4.20	N
142	1329212.211	17142928.07	93.74	4.46	N
143	1328914.846	17142931.22	30.66	4.35	N
144	1328914.846	17142932.27	30.71	4.85	N
145	1329212.211	17142932.27	126.25	3.54	N
146	1329213.261	17142932.27	115.15	4.09	N
147	1328808.72	17142941.73	307.28	4.13	Y
148	1328808.72	17142942.78	311.33	3.73	N
149	1329164.927	17142944.88	352.29	4.37	Y
150	1329212.211	17142944.88	555.72	4.38	N
151	1328860.207	17142945.93	92.76	5.92	N
152	1328861.258	17142945.93	93.57	5.94	N
153	1329212.211	17142945.93	586.33	4.27	N
154	1328810.821	17142946.98	196.49	5.94	N
155	1329212.211	17142946.98	544.47	5.94	N
156	1328810.821	17142949.08	191.14	4.20	N
157	1329710.27	17142949.08	164.57	2.97	N
158	1329113.439	17142950.14	607.10	4.79	Y
159	1329164.927	17142950.14	462.53	4.55	N
160	1329710.27	17142950.14	183.38	3.64	N
161	1329113.439	17142951.19	618.03	5.94	Y
162	1329164.927	17142951.19	556.54	4.20	N
163	1329210.109	17142953.29	571.46	4.19	N
164	1329211.16	17142953.29	622.33	4.89	N
165	1328911.694	17142954.34	194.31	4.24	N
166	1328911.694	17142955.39	186.73	3.65	N
167	1329112.389	17142955.39	411.88	4.57	N
168	1329710.27	17142955.39	155.32	2.97	N
169	1329711.32	17142955.39	168.18	5.07	Y
170	1328911.694	17142956.44	167.59	4.86	N
171	1329165.977	17142957.49	215.67	4.46	Y
172	1328861.258	17142961.69	215.67	5.07	N
173	1328862.308	17142961.69	201.86	3.82	N
174	1329710.27	17142961.69	89.70	4.47	N
175	1329711.32	17142961.69	95.33	5.94	N
176	1328961.08	17142962.74	90.52	4.20	N
177	1328961.08	17142963.8	84.99	5.82	N

TABLE C-1 - G-858 Anomaly (Target) List in NAD83 Texas South US survey ft

Target_ID	Easting	Northing	G-858G Vertical Gradient Response (nT)	Half-width (feet)	Intrusively Investigated (Y/N)
178	1329678.747	17142963.8	455.51	2.56	N
179	1329679.798	17142963.8	349.31	2.57	N
180	1328757.233	17142965.9	83.17	5.07	N
181	1329310.982	17142965.9	120.92	5.07	Y
182	1329312.033	17142965.9	116.60	4.53	N
183	1328757.233	17142966.95	76.03	5.50	N
184	1329210.109	17142966.95	3772.33	4.22	N
185	1329011.516	17142968	78.68	4.31	N
186	1329012.567	17142968	75.21	5.11	N
187	1329210.109	17142968	3694.96	4.69	N
188	1329709.219	17142969.05	158.68	3.21	N
189	1329710.27	17142969.05	157.59	5.07	Y
190	1329063.003	17142970.1	274.56	4.20	N
191	1329112.389	17142970.1	228.52	5.33	N
192	1329063.003	17142971.15	287.80	3.99	N
193	1329112.389	17142971.15	255.04	5.94	N
194	1329010.465	17142974.3	59.51	3.43	N
195	1329011.516	17142974.3	64.41	5.07	N
196	1328910.643	17142975.35	86.70	3.97	N
197	1328910.643	17142976.4	85.54	4.24	N
198	1328960.029	17142977.46	82.96	4.50	N
199	1328961.08	17142977.46	86.80	5.94	N
200	1329208.008	17142980.61	885.45	3.32	N
201	1329209.058	17142980.61	1020.21	4.20	N
202	1329682.95	17142980.61	2533.54	4.20	N
203	1329684.001	17142980.61	2377.75	5.62	N
204	1329163.876	17142981.66	209.39	5.08	N
205	1329163.876	17142982.71	230.39	5.11	Y
206	1329461.24	17142982.71	14.15	4.20	N
207	1329461.24	17142983.76	14.82	4.84	N
208	1329413.956	17142985.86	34.73	4.94	N
209	1329415.007	17142985.86	31.93	3.92	N
210	1328909.593	17142986.91	242.82	3.73	N
211	1328910.643	17142986.91	309.55	4.20	N
212	1328962.13	17142987.96	49.74	5.07	N
213	1328962.13	17142989.01	50.76	5.94	Y
214	1329713.422	17142989.01	334.25	3.62	N
215	1328962.13	17142990.06	45.96	5.94	N
216	1329713.422	17142990.06	316.65	4.67	N
217	1328962.13	17142991.11	43.24	5.94	N
218	1329061.952	17142991.11	350.02	5.05	N
219	1329209.058	17142991.11	1150.18	3.17	N
220	1329210.109	17142991.11	1372.89	4.92	N
221	1329061.952	17142992.17	360.09	5.07	N
222	1329362.469	17142993.22	477.56	5.07	N
223	1329363.52	17142993.22	433.71	3.71	N
224	1328865.461	17142994.27	14.90	3.05	N
225	1328910.643	17142994.27	79.03	3.69	N
226	1328911.694	17142994.27	68.23	3.21	N
227	1329413.956	17142994.27	82.74	5.94	N
228	1329415.007	17142994.27	75.53	5.39	N
229	1329682.95	17142994.27	561.66	5.23	N
230	1329684.001	17142994.27	522.45	5.72	N
231	1328865.461	17142995.32	15.74	4.20	N
232	1329112.389	17142995.32	250.64	3.42	N
233	1329113.439	17142995.32	265.48	3.60	N
234	1329163.876	17142995.32	98.60	5.07	Y
235	1329164.927	17142995.32	94.82	3.54	N
236	1329259.495	17142995.32	379.86	3.92	N

TABLE C-1 - G-858 Anomaly (Target) List in NAD83 Texas South US survey ft

Target_ID	Easting	Northing	G-858G Vertical Gradient Response (nT)	Half-width (feet)	Intrusively Investigated (Y/N)
237	1329260.545	17142995.32	394.20	3.58	N
238	1329209.058	17142997.42	539.84	2.97	Y
239	1329210.109	17142997.42	556.25	4.20	Y
240	1329211.16	17142997.42	511.55	4.04	N
241	1329462.291	17142998.47	80.53	5.07	N
242	1329463.342	17142998.47	74.69	3.36	N
243	1328810.821	17142999.52	337.72	5.05	Y
244	1328762.486	17143000.57	253.35	5.07	Y
245	1328864.41	17143000.57	35.87	4.66	N
246	1328762.486	17143001.62	237.17	5.94	N
247	1328864.41	17143001.62	37.94	5.00	N
248	1328712.05	17143002.67	14.67	3.80	N
249	1328713.101	17143002.67	13.10	3.24	Y
250	1328864.41	17143002.67	33.91	5.94	N
251	1328961.08	17143002.67	74.27	5.07	Y
252	1328962.13	17143002.67	70.29	3.99	N
253	1329711.32	17143002.67	288.03	3.86	N
254	1329163.876	17143003.72	21.52	4.35	N
255	1329711.32	17143003.72	301.23	4.20	N
256	1329163.876	17143004.77	20.93	4.20	N
257	1329711.32	17143004.77	275.85	5.94	N
258	1328866.511	17143005.83	27.43	4.12	N
259	1328866.511	17143006.88	27.71	3.12	N
260	1329113.439	17143007.93	102.33	3.64	N
261	1329310.982	17143007.93	87.36	5.65	N
262	1329673.493	17143010.03	604.80	5.22	N
263	1328762.486	17143011.08	256.66	3.80	N
264	1329211.16	17143011.08	886.32	3.37	N
265	1329212.211	17143011.08	1008.10	4.20	Y
266	1329673.493	17143011.08	661.80	4.20	N
267	1329712.371	17143011.08	474.19	5.60	N
268	1328762.486	17143012.13	217.21	5.72	N
269	1328911.694	17143012.13	68.84	5.07	N
270	1329712.371	17143012.13	489.00	5.93	Y
271	1328811.872	17143013.18	68.15	4.25	N
272	1328911.694	17143013.18	69.63	5.82	N
273	1328811.872	17143014.23	56.93	5.66	N
274	1328911.694	17143014.23	64.20	5.94	Y
275	1329260.545	17143014.23	60.28	3.08	N
276	1328811.872	17143015.28	54.48	5.94	N
277	1329360.367	17143015.28	213.00	3.18	N
278	1329361.418	17143015.28	234.63	4.20	N
279	1329507.473	17143015.28	28.62	4.63	Y
280	1328561.792	17143016.33	18.46	5.52	Y
281	1328811.872	17143016.33	56.10	5.07	N
282	1329507.473	17143016.33	28.91	4.68	N
283	1328561.792	17143017.38	15.05	5.62	N
284	1328910.643	17143017.38	75.63	3.88	N
285	1328911.694	17143017.38	74.18	4.68	Y
286	1329507.473	17143017.38	29.12	4.33	N
287	1329211.16	17143018.43	467.31	3.59	N
288	1328871.765	17143019.49	27.38	4.12	N
289	1329063.003	17143019.49	1631.04	4.03	Y
290	1329163.876	17143019.49	67.61	3.20	N
291	1329211.16	17143019.49	355.43	5.13	N
292	1328760.385	17143020.54	144.41	4.20	N
293	1328761.436	17143020.54	130.20	4.01	N
294	1328871.765	17143020.54	26.98	4.05	N
295	1329063.003	17143020.54	1446.02	4.64	N

TABLE C-1 - G-858 Anomaly (Target) List in NAD83 Texas South US survey ft

Target_ID	Easting	Northing	G-858G Vertical Gradient Response (nT)	Half-width (feet)	Intrusively Investigated (Y/N)
296	1329508.524	17143020.54	26.47	4.20	Y
297	1329613.6	17143022.64	20.04	4.20	Y
298	1329613.6	17143023.69	18.82	3.96	N
299	1328759.334	17143026.84	172.62	2.97	Y
300	1328760.385	17143026.84	191.41	3.59	N
301	1328864.41	17143027.89	41.92	3.06	N
302	1329060.902	17143028.94	295.79	3.63	N
303	1329061.952	17143028.94	318.75	3.90	N
304	1329163.876	17143028.94	55.86	4.85	N
305	1329163.876	17143029.99	58.44	4.89	Y
306	1329610.448	17143029.99	25.35	6.01	Y
307	1329611.498	17143029.99	26.34	6.07	N
308	1328961.08	17143032.09	96.30	4.20	N
309	1329213.261	17143032.09	1318.37	5.07	N
310	1329214.312	17143032.09	1222.72	3.80	N
311	1328760.385	17143033.15	338.45	5.94	N
312	1328961.08	17143033.15	91.51	5.47	N
313	1329060.902	17143033.15	169.40	5.07	N
314	1328760.385	17143034.2	303.01	5.59	N
315	1329060.902	17143034.2	157.94	5.19	N
316	1328760.385	17143035.25	299.51	5.94	N
317	1328760.385	17143036.3	322.74	5.94	Y
318	1329112.389	17143038.4	377.92	4.76	N
319	1328812.923	17143039.45	39.30	2.97	N
320	1329112.389	17143039.45	383.26	4.54	N
321	1328760.385	17143040.5	248.89	5.81	N
322	1328761.436	17143041.55	327.87	5.76	N
323	1328861.258	17143041.55	408.66	4.13	N
324	1329309.931	17143041.55	746.40	4.15	N
325	1329310.982	17143041.55	671.09	5.94	N
326	1328861.258	17143042.6	371.02	5.61	N
327	1328811.872	17143043.65	28.21	5.07	N
328	1328861.258	17143043.65	348.09	5.80	Y
329	1328811.872	17143044.7	29.62	5.94	Y
330	1329011.516	17143047.86	308.16	5.94	Y
331	1329012.567	17143047.86	275.06	3.56	N
332	1328761.436	17143048.91	67.64	5.94	N
333	1328910.643	17143048.91	18.11	5.94	N
334	1328911.694	17143048.91	16.94	3.73	N
335	1329410.804	17143048.91	14.95	3.30	Y
336	1329411.855	17143048.91	15.22	5.30	N
337	1329412.905	17143048.91	14.89	3.09	N
338	1329315.185	17143051.01	1114.02	4.20	N
339	1329315.185	17143052.06	1026.06	5.47	Y
340	1328761.436	17143053.11	110.63	5.07	N
341	1329315.185	17143053.11	983.59	5.94	N
342	1328761.436	17143054.16	101.44	5.16	N
343	1329315.185	17143054.16	976.39	5.94	N
344	1328910.643	17143055.21	17.00	5.07	N
345	1329363.52	17143057.31	349.78	5.94	N
346	1329210.109	17143058.36	187.25	5.94	N
347	1329363.52	17143058.36	386.57	5.94	N
348	1329210.109	17143059.41	215.09	5.07	N
349	1329363.52	17143059.41	442.13	5.07	Y
350	1329111.338	17143061.52	53.82	2.97	N
351	1329111.338	17143062.57	52.51	3.58	N
352	1329164.927	17143063.62	310.81	4.76	N
353	1329165.977	17143063.62	260.24	4.91	N
354	1329314.134	17143063.62	895.14	4.12	Y

TABLE C-1 - G-858 Anomaly (Target) List in NAD83 Texas South US survey ft

Target_ID	Easting	Northing	G-858G Vertical Gradient Response (nT)	Half-width (feet)	Intrusively Investigated (Y/N)
355	1329362.469	17143063.62	382.05	3.12	N
356	1329363.52	17143063.62	460.37	5.07	N
357	1329364.57	17143063.62	402.38	3.18	N
358	1329314.134	17143064.67	898.08	4.34	N
359	1329561.062	17143065.72	497.73	4.20	N
360	1329561.062	17143066.77	473.18	5.46	N
361	1329060.902	17143067.82	214.52	4.02	N
362	1329061.952	17143067.82	221.40	3.97	N
363	1329260.545	17143067.82	38.59	4.20	N
364	1329261.596	17143067.82	32.92	3.68	N
365	1329109.236	17143068.87	73.62	6.13	**Y**
366	1329110.287	17143068.87	77.43	5.79	N
367	1329313.083	17143068.87	836.89	4.26	N
368	1329314.134	17143068.87	879.37	4.20	N
369	1329260.545	17143077.28	83.82	4.85	N
370	1329363.52	17143077.28	285.69	5.77	N
371	1329260.545	17143078.33	80.81	5.07	N
372	1329363.52	17143078.33	306.74	5.61	N
373	1329462.291	17143078.33	251.28	5.07	N
374	1329463.342	17143078.33	236.77	3.37	N
375	1329562.113	17143078.33	1510.36	5.17	N
376	1329562.113	17143079.38	1583.49	5.07	**Y**
377	1329172.282	17143080.43	124.43	4.20	N
378	1329562.113	17143080.43	1313.53	5.91	N
379	1329172.282	17143081.48	117.48	5.94	N
380	1329420.261	17143083.58	131.47	3.58	N
381	1329363.52	17143084.63	132.28	5.92	N
382	1329419.21	17143084.63	129.06	3.78	N
383	1329363.52	17143085.68	130.06	4.25	N
384	1329608.346	17143085.68	198.38	3.99	N
385	1329609.397	17143085.68	213.10	5.94	N
386	1329423.413	17143089.89	169.56	4.09	N
387	1329423.413	17143090.94	174.24	3.52	N
388	1329509.575	17143091.99	227.28	5.94	N
389	1329510.626	17143091.99	222.76	5.94	N
390	1329611.498	17143096.19	82.94	5.76	N
391	1329612.549	17143096.19	86.19	4.20	**Y**
392	1329313.083	17143097.24	154.62	5.46	N
393	1329314.134	17143097.24	150.00	2.97	N
394	1329422.362	17143097.24	133.52	5.44	N
395	1329423.413	17143097.24	142.51	4.31	N
396	1329424.464	17143097.24	139.60	3.65	N
397	1329462.291	17143097.24	91.77	5.47	N
398	1328613.279	17143098.29	15.18	4.20	**Y**
399	1328614.33	17143098.29	14.12	3.26	N
400	1328761.436	17143098.29	36.96	5.14	N
401	1328762.486	17143098.29	37.99	3.97	N
402	1329462.291	17143098.29	88.56	4.76	N
403	1329172.282	17143100.39	314.30	4.20	N
404	1329172.282	17143101.44	264.41	5.24	N
405	1329172.282	17143102.5	231.24	5.07	N
406	1329362.469	17143104.6	419.36	5.94	N
407	1329363.52	17143104.6	349.43	3.18	N
408	1329362.469	17143108.8	285.63	5.94	N
409	1329506.423	17143108.8	731.42	3.63	N
410	1329507.473	17143108.8	782.71	3.44	N
411	1329362.469	17143109.85	303.28	5.07	N
412	1329460.189	17143109.85	124.48	3.54	**Y**
413	1329461.24	17143109.85	129.75	5.07	N

TABLE C-1 - G-858 Anomaly (Target) List in NAD83 Texas South US survey ft

Target_ID	Easting	Northing	G-858G Vertical Gradient Response (nT)	Half-width (feet)	Intrusively Investigated (Y/N)
414	1328862.308	17143111.95	13.93	3.20	N
415	1328863.359	17143111.95	15.05	5.07	N
416	1329209.058	17143111.95	1160.01	3.82	Y
417	1329210.109	17143111.95	1265.71	4.76	N
418	1329502.22	17143116.16	713.21	5.82	N
419	1328661.614	17143117.21	16.06	3.59	N
420	1329502.22	17143117.21	875.23	5.12	Y
421	1328661.614	17143118.26	12.89	4.99	N
422	1329413.956	17143118.26	414.94	4.50	N
423	1329413.956	17143119.31	386.85	4.76	N
424	1329505.372	17143124.56	229.69	5.92	N
425	1329461.24	17143125.61	1294.65	3.79	N
426	1329462.291	17143125.61	1173.90	3.78	N
427	1329415.007	17143126.66	268.91	5.94	N
428	1329415.007	17143127.71	281.63	5.86	N
429	1329558.961	17143127.71	254.82	5.07	N
430	1329558.961	17143128.76	230.85	5.15	N
431	1329260.545	17143130.87	53.54	5.70	Y
432	1329260.545	17143131.92	58.68	4.20	N
433	1329510.626	17143132.97	262.33	5.21	N
434	1329511.676	17143132.97	247.21	3.97	N
435	1329362.469	17143134.02	112.11	5.15	N
436	1329363.52	17143134.02	104.88	4.20	N
437	1329461.24	17143140.32	135.02	4.67	Y
438	1329462.291	17143140.32	134.46	5.29	N
439	1329415.007	17143141.37	267.09	5.94	N
440	1329415.007	17143142.42	292.26	4.44	N
441	1329510.626	17143143.47	371.20	4.64	N
442	1329510.626	17143144.53	349.36	4.20	N
443	1329261.596	17143152.93	13.00	3.20	N
444	1329262.647	17143152.93	12.57	3.71	N
445	1329359.317	17143152.93	88.23	3.07	N
446	1329360.367	17143152.93	97.44	5.07	N
447	1329262.647	17143161.34	20.32	5.55	N
448	1329263.698	17143161.34	14.08	3.92	N
449	1329359.317	17143162.39	535.20	3.19	N
450	1329360.367	17143162.39	592.25	5.07	N
451	1329509.575	17143162.39	568.94	4.76	N
452	1329510.626	17143162.39	522.56	3.43	Y
453	1328612.228	17143164.49	83.59	5.09	N
454	1328612.228	17143165.54	85.34	4.20	N
455	1329412.905	17143178.15	85.66	5.07	N
456	1329413.956	17143178.15	77.31	3.64	Y
457	1328562.843	17143188.66	19.80	3.18	Y
458	1328610.127	17143192.86	150.89	5.76	Y
459	1328611.177	17143192.86	134.31	2.97	N
460	1329459.139	17143196.01	177.44	4.27	N
461	1329460.189	17143196.01	166.85	4.51	N
462	1328608.025	17143206.52	160.54	5.77	N
463	1329058.8	17143206.52	45.27	3.74	Y
464	1329059.851	17143206.52	52.55	5.90	N
465	1329408.702	17143206.52	19.61	3.18	Y
466	1329409.753	17143206.52	20.46	3.59	N
467	1328608.025	17143207.57	186.29	5.07	Y
468	1328962.13	17143222.28	18.25	2.97	Y

TABLE C-2 - EM61 Anomaly (Target) List in NAD83 Texas South US survey feet

Target_ID	Easting	Northing	EM61 Response (mV)	Half-width (feet)
1	1329513.8	17142373.4	12.36	3.99
2	1329514.9	17142373.4	10.68	3.39
3	1328858.9	17142452.4	165.43	3.24
4	1328860.1	17142452.4	222.95	6.48
5	1328861.2	17142452.4	164.90	3.24
6	1329110.8	17142516.5	52.40	6.48
7	1329462.2	17142516.5	11.96	6.48
8	1329110.8	17142517.6	44.40	6.48
9	1329462.2	17142517.6	12.06	5.81
10	1329211.5	17142523.3	55.86	3.84
11	1329212.7	17142523.3	68.59	4.58
12	1328761.6	17142542.8	24.06	6.09
13	1328761.6	17142544.0	22.47	5.53
14	1329663.7	17142557.7	82.60	4.69
15	1329661.4	17142564.6	86.85	4.36
16	1329662.6	17142564.6	94.17	5.53
17	1329059.3	17142597.8	15.94	3.76
18	1329060.4	17142597.8	17.36	6.18
19	1329662.6	17142633.2	1063.75	4.58
20	1329663.7	17142633.2	928.48	4.44
21	1329561.8	17142650.4	54.32	5.53
22	1329563.0	17142650.4	41.58	3.20
23	1329261.9	17142672.2	71.28	4.70
24	1329261.9	17142673.3	72.09	5.53
25	1328810.8	17142675.6	48.05	5.53
26	1328810.8	17142676.8	44.81	6.48
27	1329010.0	17142697.4	87.29	3.45
28	1328960.8	17142726.0	169.10	3.62
29	1328962.0	17142726.0	197.61	5.53
30	1328963.1	17142726.0	170.27	3.27
31	1329011.2	17142727.1	18.69	3.68
32	1329012.3	17142727.1	16.78	5.53
33	1329011.2	17142740.9	71.55	5.53
34	1329012.3	17142740.9	56.54	3.47
35	1328659.7	17142742.0	37.29	3.24
36	1328660.9	17142742.0	50.73	5.53
37	1328662.0	17142742.0	38.05	3.24
38	1329259.6	17142753.5	197.51	3.98
39	1329259.6	17142754.6	163.03	4.58
40	1328711.2	17142758.0	106.69	4.58
41	1328910.4	17142763.8	33.98	4.66
42	1328910.4	17142764.9	33.65	3.24
43	1328860.1	17142767.2	12.80	5.46
44	1328861.2	17142767.2	14.34	5.12
45	1329010.0	17142769.5	42.66	4.98
46	1329011.2	17142769.5	46.77	5.53

TABLE C-2 - EM61 Anomaly (Target) List in NAD83 Texas South US survey feet

Target_ID	Easting	Northing	EM61 Response (mV)	Half-width (feet)
47	1329061.6	17142775.2	202.12	3.98
48	1328911.6	17142784.4	235.74	5.81
49	1328911.6	17142785.5	194.51	5.53
50	1328812.0	17142787.8	54.21	3.24
51	1329011.2	17142787.8	78.43	4.37
52	1329012.3	17142787.8	70.65	3.90
53	1328812.0	17142788.9	54.46	3.63
54	1328808.6	17142807.3	11.93	4.26
55	1328809.7	17142807.3	10.67	5.41
56	1328963.1	17142816.4	50.14	4.50
57	1328964.3	17142816.4	45.93	5.28
58	1328858.9	17142817.6	163.93	4.58
59	1328860.1	17142817.6	163.90	4.25
60	1329260.8	17142832.4	34.28	4.90
61	1329363.8	17142832.4	43.76	4.90
62	1329260.8	17142833.6	52.21	6.48
63	1329363.8	17142833.6	58.61	3.91
64	1328861.2	17142835.9	24.80	5.14
65	1329210.4	17142835.9	10.89	3.70
66	1329211.5	17142835.9	11.40	6.27
67	1329611.1	17142840.5	30.22	4.46
68	1329612.2	17142840.5	32.15	4.71
69	1328909.3	17142841.6	18.61	3.64
70	1328910.4	17142841.6	20.42	5.53
71	1328911.6	17142841.6	18.91	3.55
72	1328860.1	17142843.9	64.91	3.24
73	1328861.2	17142843.9	71.70	5.53
74	1328862.4	17142843.9	61.43	3.36
75	1328910.4	17142851.9	43.13	4.10
76	1328911.6	17142851.9	44.82	5.16
77	1329110.8	17142853.1	18.48	4.58
78	1329111.9	17142853.1	16.71	4.82
79	1328965.4	17142857.6	76.48	4.58
80	1328965.4	17142858.8	74.05	6.67
81	1328962.0	17142877.1	57.45	3.60
82	1328963.1	17142877.1	66.03	5.53
83	1329265.3	17142879.4	24.80	6.36
84	1328761.6	17142880.5	11.15	3.76
85	1328762.8	17142880.5	12.87	4.58
86	1328763.9	17142880.5	11.08	3.24
87	1329265.3	17142880.5	38.28	5.53
88	1329162.3	17142881.7	15.87	5.53
89	1329163.4	17142881.7	13.89	3.70
90	1328910.4	17142884.0	20.53	3.50
91	1329111.9	17142893.1	179.23	3.90

TABLE C-2 - EM61 Anomaly (Target) List in NAD83 Texas South US survey feet

Target_ID	Easting	Northing	EM61 Response (mV)	Half-width (feet)
92	1329111.9	17142894.3	168.96	4.23
93	1329312.3	17142900.0	11.66	6.48
94	1329313.4	17142900.0	12.34	3.57
95	1329060.4	17142901.1	1695.11	5.21
96	1329265.3	17142901.1	3489.39	3.61
97	1329060.4	17142902.3	1555.48	4.57
98	1329265.3	17142902.3	4586.70	5.54
99	1329163.4	17142904.6	122.66	4.11
100	1329164.6	17142904.6	114.30	4.70
101	1328965.4	17142908.0	36.84	5.73
102	1328965.4	17142909.1	36.11	4.62
103	1329108.5	17142910.3	527.96	3.72
104	1329109.6	17142910.3	801.93	4.58
105	1329110.8	17142910.3	528.53	4.47
106	1329011.2	17142918.3	63.94	4.29
107	1329012.3	17142918.3	58.24	4.20
108	1329263.0	17142919.5	13.98	3.59
109	1329209.2	17142921.7	66.52	5.38
110	1329210.4	17142921.7	77.83	5.53
111	1328911.6	17142928.6	11.18	5.53
112	1329209.2	17142933.2	141.91	5.08
113	1329210.4	17142933.2	142.50	6.08
114	1329162.3	17142942.3	1320.20	3.71
115	1329163.4	17142942.3	1821.37	3.97
116	1328911.6	17142943.5	17.64	3.31
117	1328912.7	17142943.5	20.48	5.53
118	1328913.9	17142943.5	18.21	3.29
119	1329110.8	17142945.8	7727.65	4.66
120	1329111.9	17142945.8	6740.05	3.35
121	1328962.0	17142948.1	15.84	4.58
122	1328810.8	17142949.2	59.31	6.48
123	1328812.0	17142949.2	48.01	3.76
124	1328962.0	17142949.2	16.11	5.61
125	1329164.6	17142954.9	1080.85	4.06
126	1329165.7	17142954.9	1035.45	4.37
127	1328861.2	17142957.2	14.40	6.48
128	1328862.4	17142957.2	14.79	6.43
129	1329111.9	17142958.4	1580.51	3.24
130	1329113.1	17142958.4	1930.69	4.58
131	1329114.2	17142958.4	1657.49	3.32
132	1328910.4	17142959.5	44.10	4.28
133	1329210.4	17142959.5	1160.95	5.10
134	1329311.1	17142959.5	300.58	4.24
135	1329312.3	17142959.5	265.78	4.61
136	1328959.7	17142960.7	30.28	4.19

TABLE C-2 - EM61 Anomaly (Target) List in NAD83 Texas South US survey feet

Target_ID	Easting	Northing	EM61 Response (mV)	Half-width (feet)
137	1328960.8	17142960.7	33.78	4.40
138	1329210.4	17142960.7	1092.97	5.67
139	1328755.9	17142963.0	110.01	3.71
140	1328860.1	17142964.1	14.45	3.53
141	1328861.2	17142964.1	19.80	6.48
142	1328862.4	17142964.1	13.46	5.25
143	1328911.6	17142967.5	49.96	6.40
144	1329060.4	17142967.5	1517.50	3.84
145	1329061.6	17142967.5	2036.60	5.53
146	1329062.7	17142967.5	1691.63	3.26
147	1328861.2	17142968.7	12.34	5.74
148	1328862.4	17142968.7	17.00	4.69
149	1328863.5	17142968.7	12.56	3.62
150	1328911.6	17142968.7	55.41	5.53
151	1329208.1	17142968.7	2128.40	3.79
152	1329209.2	17142968.7	2876.24	4.58
153	1329011.2	17142969.8	25.59	4.14
154	1329011.2	17142971.0	26.78	3.68
155	1329261.9	17142973.3	322.58	4.00
156	1329263.0	17142973.3	265.15	3.88
157	1328910.4	17142975.5	134.87	3.24
158	1328911.6	17142975.5	176.89	6.48
159	1329208.1	17142979.0	1147.90	4.69
160	1329209.2	17142979.0	1282.58	3.36
161	1328810.8	17142980.1	976.42	4.75
162	1329161.2	17142981.3	644.77	5.53
163	1329060.4	17142982.4	1147.46	4.71
164	1329061.6	17142982.4	1545.27	5.25
165	1329062.7	17142982.4	1264.33	3.33
166	1329160.0	17142982.4	603.63	4.04
167	1329684.3	17142984.7	11160.19	4.58
168	1328911.6	17142985.9	153.00	4.14
169	1328912.7	17142985.9	121.06	4.98
170	1329366.1	17142985.9	112.22	5.53
171	1329684.3	17142985.9	10071.14	4.48
172	1329110.8	17142988.1	151.84	4.58
173	1329111.9	17142988.1	135.50	3.29
174	1328860.1	17142993.9	142.92	5.53
175	1328861.2	17142993.9	127.70	3.72
176	1329312.3	17142995.0	72.27	4.58
177	1329364.9	17142995.0	226.94	5.06
178	1329312.3	17142996.2	63.36	5.88
179	1329364.9	17142996.2	256.92	5.74
180	1329411.9	17142997.3	245.56	4.50
181	1329413.0	17142997.3	255.70	5.53

TABLE C-2 - EM61 Anomaly (Target) List in NAD83 Texas South US survey feet

Target_ID	Easting	Northing	EM61 Response (mV)	Half-width (feet)
182	1329684.3	17142997.3	223.01	4.58
183	1328761.6	17142999.6	697.25	6.13
184	1329261.9	17142999.6	1883.87	5.53
185	1329263.0	17142999.6	1758.28	3.24
186	1328761.6	17143000.7	666.83	6.48
187	1328960.8	17143003.0	86.04	3.58
188	1329212.7	17143005.3	846.07	4.33
189	1329212.7	17143006.5	921.75	4.36
190	1329677.5	17143007.6	1759.40	3.61
191	1329678.6	17143007.6	1613.58	6.08
192	1329113.1	17143008.7	469.45	4.58
193	1329114.2	17143008.7	461.99	3.86
194	1328862.4	17143009.9	670.98	6.10
195	1328863.5	17143009.9	678.82	5.64
196	1328560.1	17143011.0	153.22	3.94
197	1328561.3	17143011.0	164.81	6.48
198	1329212.7	17143011.0	530.30	4.41
199	1329311.1	17143011.0	55.94	3.96
200	1328809.7	17143013.3	121.63	3.96
201	1328810.8	17143013.3	124.48	4.56
202	1329363.8	17143013.3	28.08	4.37
203	1329710.7	17143014.5	143.81	4.07
204	1329711.8	17143014.5	139.37	4.49
205	1329212.7	17143017.9	4725.72	5.53
206	1329213.8	17143017.9	3636.99	4.44
207	1329059.3	17143019.1	1032.61	2.76
208	1329060.4	17143019.1	1206.65	6.48
209	1329363.8	17143023.6	14.20	3.96
210	1329708.4	17143024.8	437.89	4.48
211	1329709.5	17143024.8	647.51	4.58
212	1329061.6	17143027.1	485.81	5.56
213	1329062.7	17143027.1	578.20	3.50
214	1329313.4	17143027.1	36.76	5.04
215	1328860.1	17143030.5	43.51	5.84
216	1328861.2	17143030.5	38.05	4.60
217	1328960.8	17143030.5	87.57	3.25
218	1328962.0	17143030.5	136.47	5.53
219	1328963.1	17143030.5	86.26	3.96
220	1328758.2	17143031.6	2502.67	5.53
221	1328759.3	17143031.6	2268.22	3.94
222	1328711.2	17143038.5	100.49	5.28
223	1328711.2	17143039.7	101.06	5.53
224	1328858.9	17143039.7	416.47	3.24
225	1328860.1	17143039.7	521.40	5.53
226	1328861.2	17143039.7	413.53	3.38

TABLE C-2 - EM61 Anomaly (Target) List in NAD83 Texas South US survey feet

Target_ID	Easting	Northing	EM61 Response (mV)	Half-width (feet)
227	1329609.9	17143039.7	17.36	4.55
228	1329111.9	17143040.8	95.90	4.28
229	1329609.9	17143040.8	16.86	6.67
230	1329111.9	17143041.9	99.50	4.17
231	1329008.9	17143045.4	601.15	3.49
232	1329010.0	17143045.4	734.62	5.53
233	1329011.2	17143045.4	517.13	3.24
234	1328810.8	17143046.5	52.28	4.77
235	1329060.4	17143046.5	87.58	5.14
236	1329061.6	17143046.5	83.05	4.80
237	1329312.3	17143046.5	1071.75	5.53
238	1329313.4	17143046.5	921.11	3.44
239	1328910.4	17143047.7	15.76	6.12
240	1328911.6	17143047.7	14.95	3.68
241	1329661.4	17143054.5	27.83	3.50
242	1329662.6	17143054.5	39.39	3.91
243	1329663.7	17143054.5	31.30	4.11
244	1328711.2	17143056.8	18.23	5.53
245	1329413.0	17143058.0	27.13	5.53
246	1329260.8	17143059.1	23.62	4.61
247	1329261.9	17143059.1	20.64	4.42
248	1329414.2	17143059.1	21.60	3.26
249	1329059.3	17143061.4	144.95	5.12
250	1329163.4	17143061.4	74.05	3.24
251	1329164.6	17143061.4	104.03	4.58
252	1329059.3	17143062.6	163.69	6.48
253	1329363.8	17143062.6	77.18	3.88
254	1329364.9	17143062.6	78.29	6.32
255	1329366.1	17143062.6	67.87	4.35
256	1329313.4	17143066.0	1752.82	6.48
257	1329313.4	17143067.1	1750.43	4.58
258	1329564.1	17143067.1	128.89	5.33
259	1329564.1	17143068.3	135.65	5.36
260	1329366.1	17143072.9	284.55	4.75
261	1329367.2	17143072.9	248.31	3.38
262	1329561.8	17143078.6	398.18	5.04
263	1329561.8	17143079.7	417.45	5.26
264	1329363.8	17143080.9	172.52	3.38
265	1329364.9	17143080.9	198.02	5.69
266	1329366.1	17143080.9	155.20	3.24
267	1329463.4	17143080.9	107.75	6.48
268	1329463.4	17143082.0	101.97	6.48
269	1328962.0	17143085.4	47.08	5.97
270	1328963.1	17143085.4	51.75	3.41
271	1329419.9	17143087.7	726.36	3.51

TABLE C-2 - EM61 Anomaly (Target) List in NAD83 Texas South US survey feet

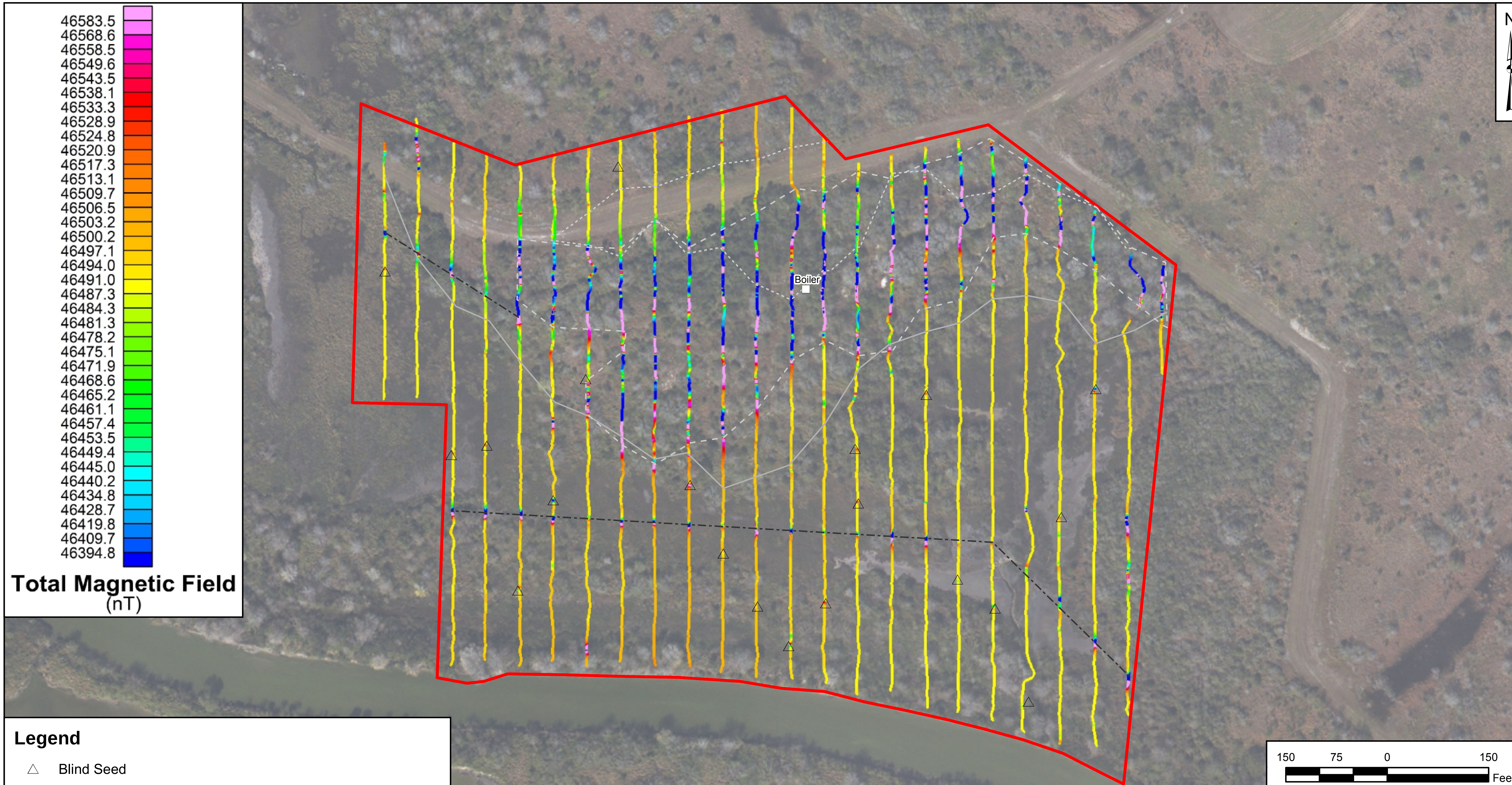
Target_ID	Easting	Northing	EM61 Response (mV)	Half-width (feet)
272	1329109.6	17143088.9	8147.86	3.78
273	1329110.8	17143088.9	10353.49	5.53
274	1329509.2	17143090.0	93.77	3.27
275	1329510.3	17143090.0	113.14	5.53
276	1329511.5	17143090.0	89.83	3.35
277	1329426.8	17143091.2	309.50	3.02
278	1329609.9	17143093.5	20.15	4.58
279	1329609.9	17143094.6	22.35	4.26
280	1329462.2	17143098.0	41.92	4.19
281	1329463.4	17143098.0	42.98	4.42
282	1329171.5	17143099.2	493.42	3.37
283	1329172.6	17143099.2	586.64	4.58
284	1329314.6	17143107.2	51.58	6.48
285	1329315.7	17143108.3	39.68	6.09
286	1329458.8	17143108.3	111.48	3.79
287	1329460.0	17143108.3	122.37	4.76
288	1329363.8	17143109.5	75.46	4.25
289	1329364.9	17143109.5	82.49	4.58
290	1329509.2	17143109.5	183.93	3.75
291	1329212.7	17143112.9	83.26	4.58
292	1329213.8	17143112.9	73.52	3.84
293	1328658.6	17143115.2	57.75	3.81
294	1328659.7	17143115.2	66.45	4.29
295	1329171.5	17143116.4	11215.52	6.48
296	1329172.6	17143116.4	11123.57	6.76
297	1329502.3	17143119.8	283.72	4.46
298	1329502.3	17143120.9	332.44	3.28
299	1329415.3	17143123.2	53.03	6.48
300	1329415.3	17143124.4	53.37	5.82
301	1329461.1	17143124.4	40.36	6.48
302	1329261.9	17143126.7	16.25	4.58
303	1329263.0	17143126.7	11.98	3.40
304	1329559.6	17143127.8	188.66	4.25
305	1329363.8	17143129.0	13.18	6.48
306	1329560.7	17143129.0	160.86	3.68
307	1329363.8	17143130.1	13.87	5.53
308	1329414.2	17143137.0	65.70	6.16
309	1329461.1	17143137.0	1157.58	3.88
310	1329462.2	17143137.0	1776.63	6.20
311	1329414.2	17143138.1	64.38	5.42
312	1328560.1	17143139.3	14.79	4.79
313	1328560.1	17143140.4	19.95	4.58
314	1329512.6	17143143.8	165.30	6.25
315	1329311.1	17143145.0	38.08	3.29
316	1329312.3	17143145.0	50.44	4.58

TABLE C-2 - EM61 Anomaly (Target) List in NAD83 Texas South US survey feet

Target_ID	Easting	Northing	EM61 Response (mV)	Half-width (feet)
317	1329313.4	17143145.0	38.78	4.58
318	1329512.6	17143145.0	178.34	4.58
319	1328611.6	17143161.0	38.44	4.50
320	1328611.6	17143162.2	32.74	5.08
321	1329361.5	17143162.2	524.21	4.58
322	1329362.6	17143162.2	425.72	3.24
323	1329510.3	17143163.3	225.48	4.42
324	1329511.5	17143163.3	299.59	4.24
325	1329512.6	17143163.3	247.28	3.81
326	1328610.5	17143180.5	18.08	5.53
327	1328611.6	17143180.5	16.53	3.24
328	1329411.9	17143180.5	49.33	4.43
329	1329413.0	17143180.5	40.20	3.61
330	1328608.2	17143191.9	23.09	3.80
331	1328609.4	17143191.9	24.77	5.53
332	1329461.1	17143194.2	56.44	6.41
333	1329461.1	17143195.4	64.22	5.53
334	1328608.2	17143203.4	27.79	3.75
335	1329060.4	17143203.4	11.18	6.48
336	1328608.2	17143204.5	32.37	4.58
337	1329060.4	17143204.5	10.07	4.82
338	1329060.4	17143205.7	13.62	5.53
339	1328608.2	17143212.5	17.54	6.15
340	1328609.4	17143212.5	16.70	6.31
341	1328962.0	17143219.4	40.19	5.53

Appendix C-2
DGM Blind Seed QC Figures – Figure C-1 and C-2

P:\GIS\COURPUSCHRISTI_NAS\MXD\INCINERATOR_G858G_BLIND_SEED.MXD 02/09/12 JN



Legend

- △ Blind Seed
- EM31-inferred Possible Landfill Boundary/Construction Fill
- EM31-inferred Shallow Groundwater (south of boundary line)
- G-858G-inferred Possible Landfill Boundary
- Broken Fence
- Study Area

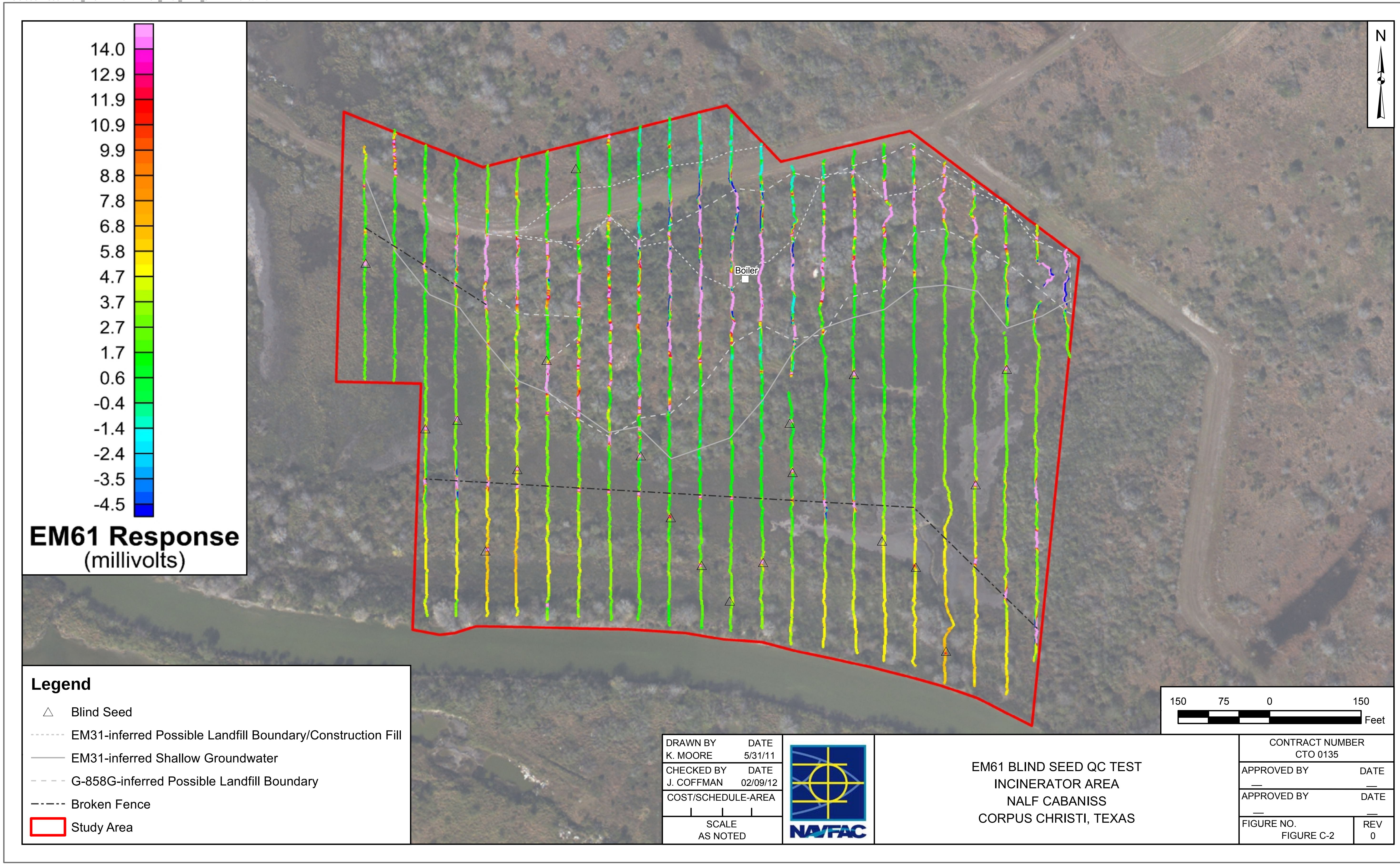
DRAWN BY	DATE
K. MOORE	5/31/11
CHECKED BY	DATE
J. COFFMAN	02/09/12
COST/SCHEDULE-AREA	
SCALE AS NOTED	

NAVFAC

G-858 MAGNETOMETER BLIND SEED QC TEST
INCINERATOR DISPOSAL SITE
NALF CABANISS
CORPUS CHRISTI, TEXAS

CONTRACT NUMBER CTO 0135	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO. FIGURE C-1	REV 0

P:\GIS\COURPUSCHRISTI_NAS\MXD\INCINERATOR_EM61_BLIND_SEED.MXD 02/09/12 JN



Appendix C-3
DGM IVS Figures and DGM GPS QC Figures – Figures C-3 through C-7

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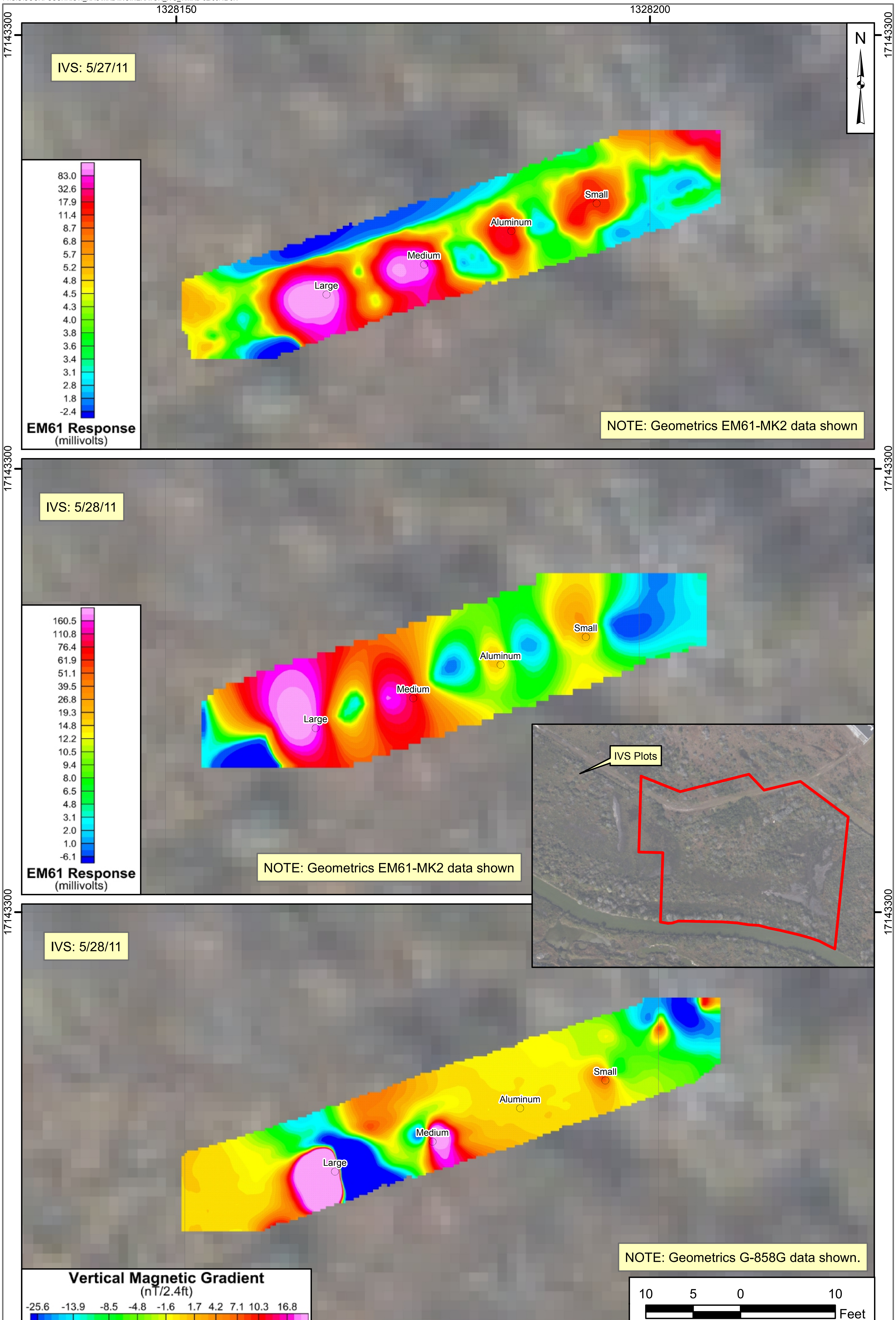
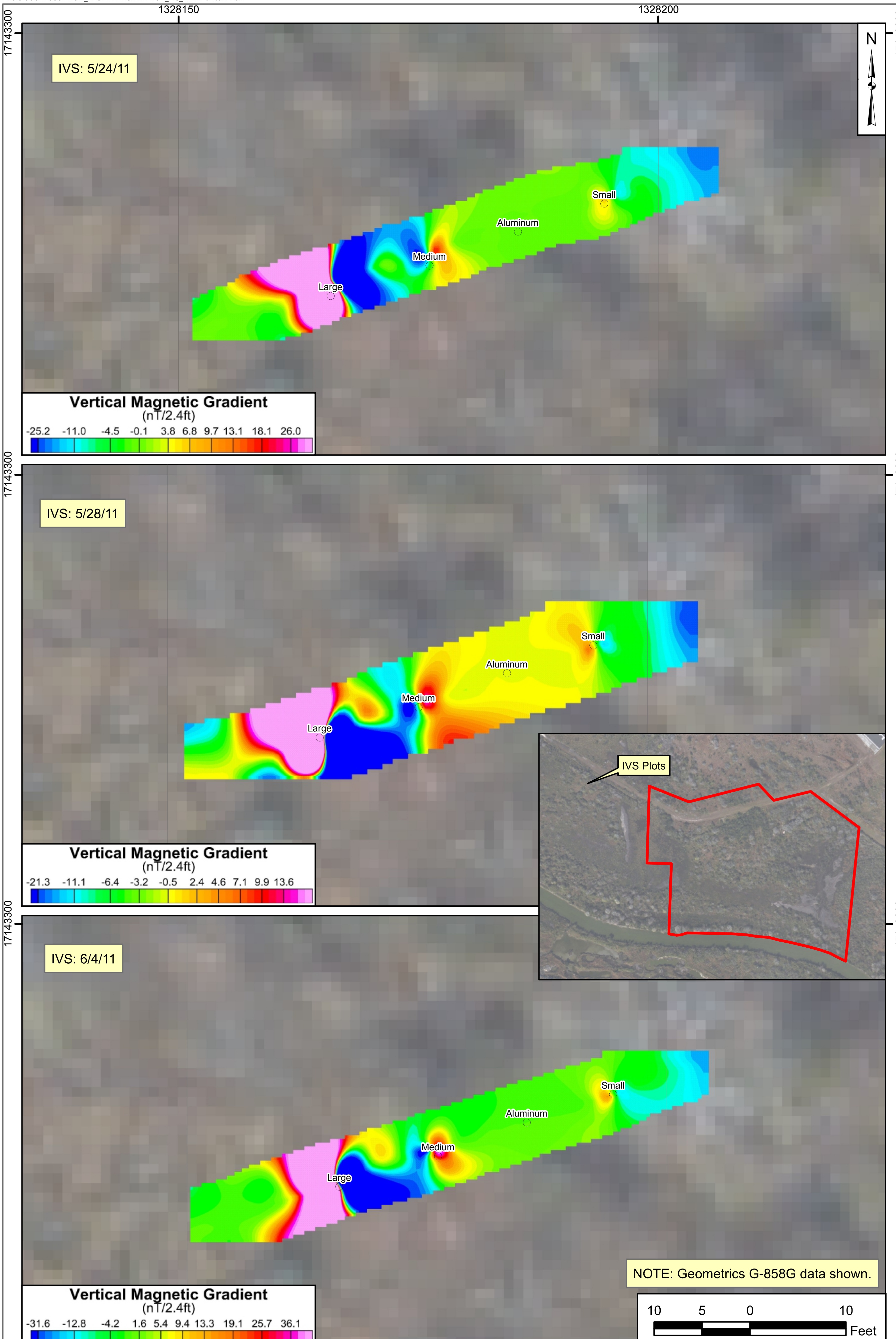


DRAWN BY K. MOORE — DATE 9/8/11	IVS DATA-DGM	CONTRACT NUMBER CTO 0135
CHECKED BY J. COFFMAN — DATE 02/09/12	INCINERATOR DISPOSAL SITE	APPROVED BY — DATE
COST/SCHED AREA	NALF CABANISS	APPROVED BY — DATE
SCALE AS NOTED	CORPUS CHRISTI, TEXAS	FIGURE NO. FIGURE C-3 — REV 0

NAVFAC



DRAWN BY	DATE		IVS DATA-DGM	CONTRACT NUMBER	
K. MOORE	9/8/11		INCINERATOR DISPOSAL SITE	CTO 0135	
CHECKED BY	DATE	NAVFAC	NALF CABANISS	APPROVED BY	DATE
J. COFFMAN	02/09/12		CORPUS CHRISTI, TEXAS	APPROVED BY	DATE
COST/SCHED AREA				FIGURE NO.	REV
SCALE AS NOTED				FIGURE C-4	0

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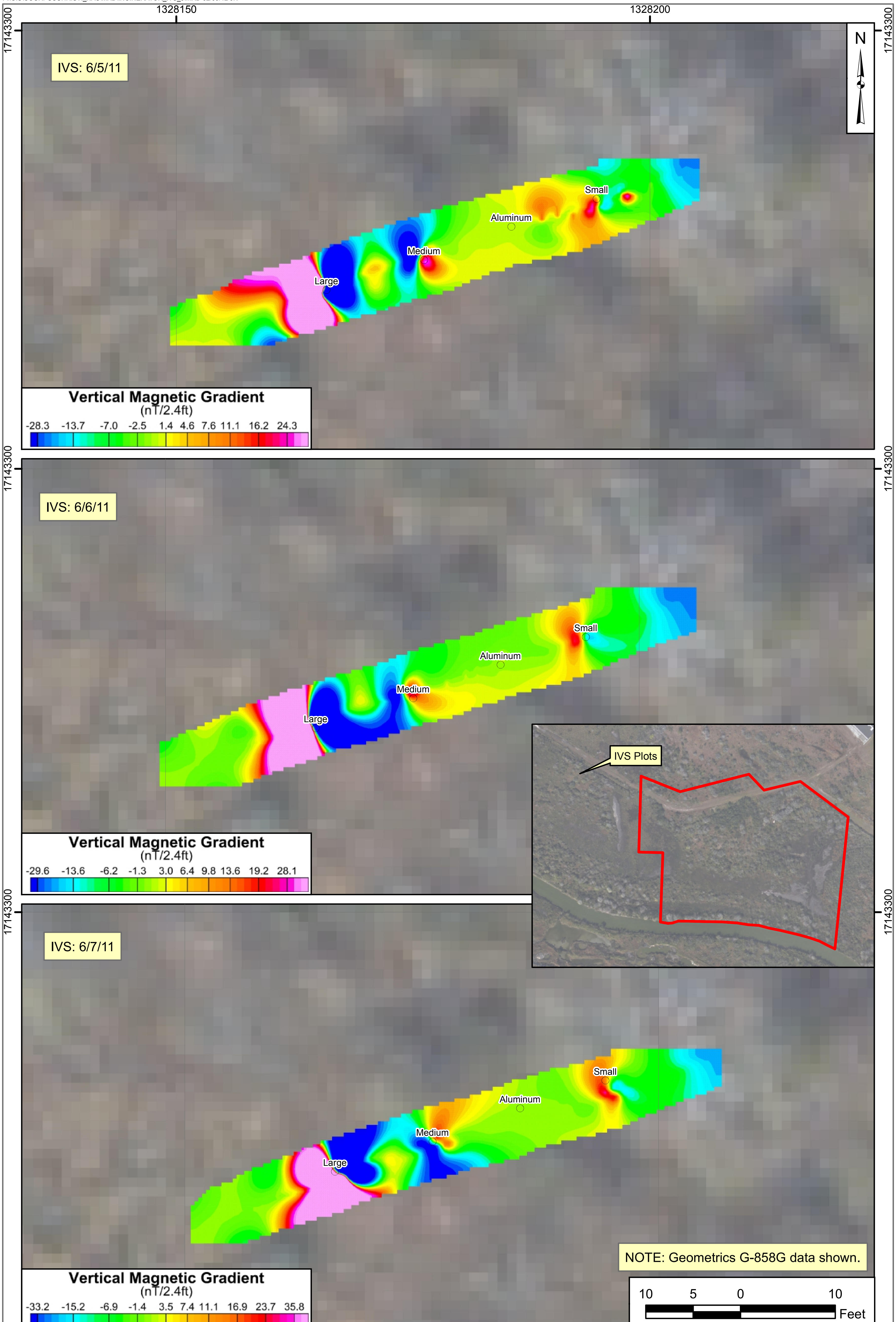
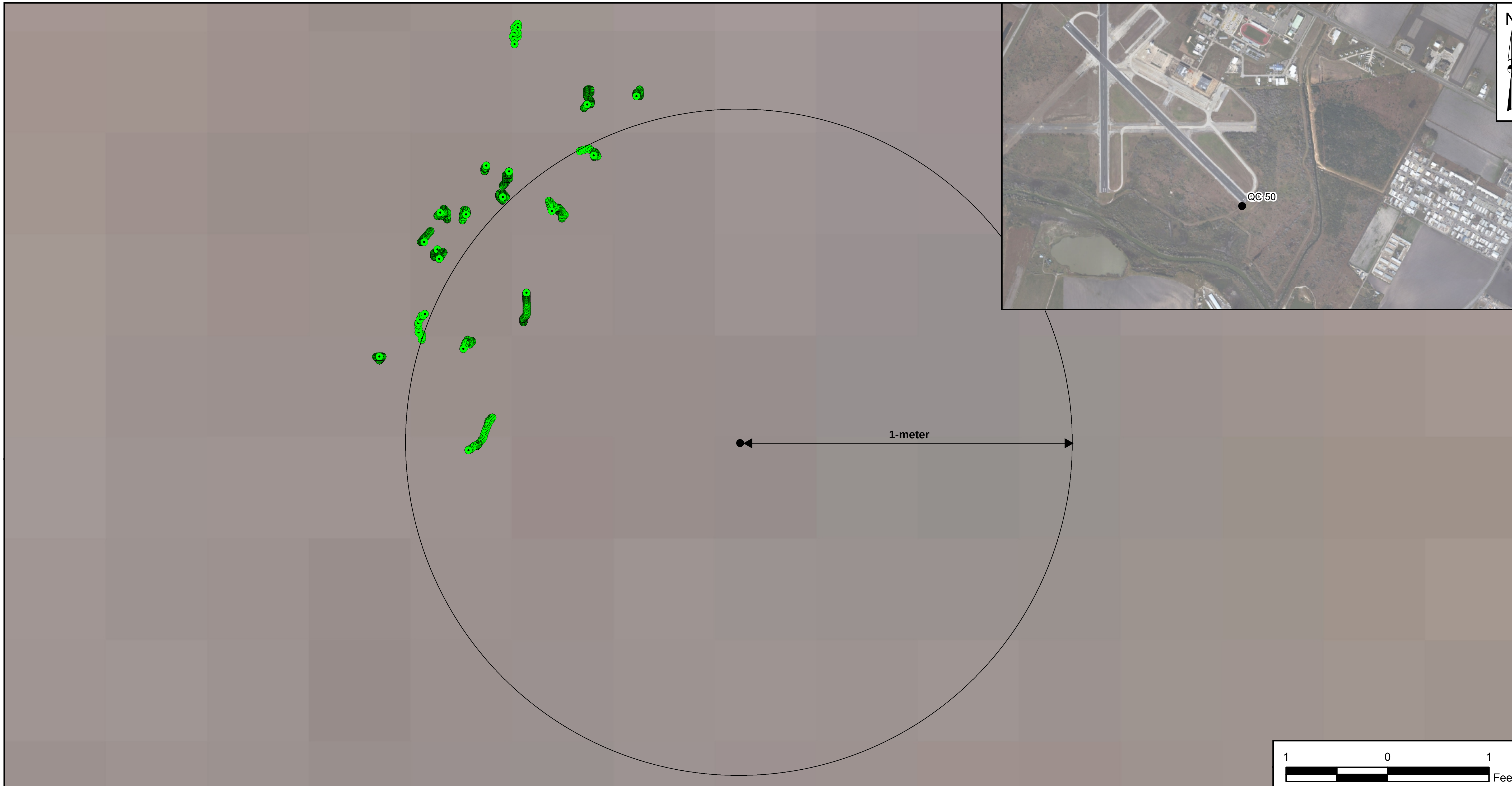


DRAWN BY K. MOORE	DATE 9/8/11	IVS DATA-DGM INCINERATOR DISPOSAL SITE NALF CABANISS CORPUS CHRISTI, TEXAS	CONTRACT NUMBER CTO 0135
CHECKED BY J. COFFMAN	DATE 02/09/12		APPROVED BY ___ DATE ___
COST/SCHED AREA			APPROVED BY ___ DATE ___
SCALE AS NOTED			FIGURE NO. FIGURE C-5 / REV 0

NAVFAC



1 0 1
Feet

Legend

- GPS Data for QC Check
- TT Drill Hole #50

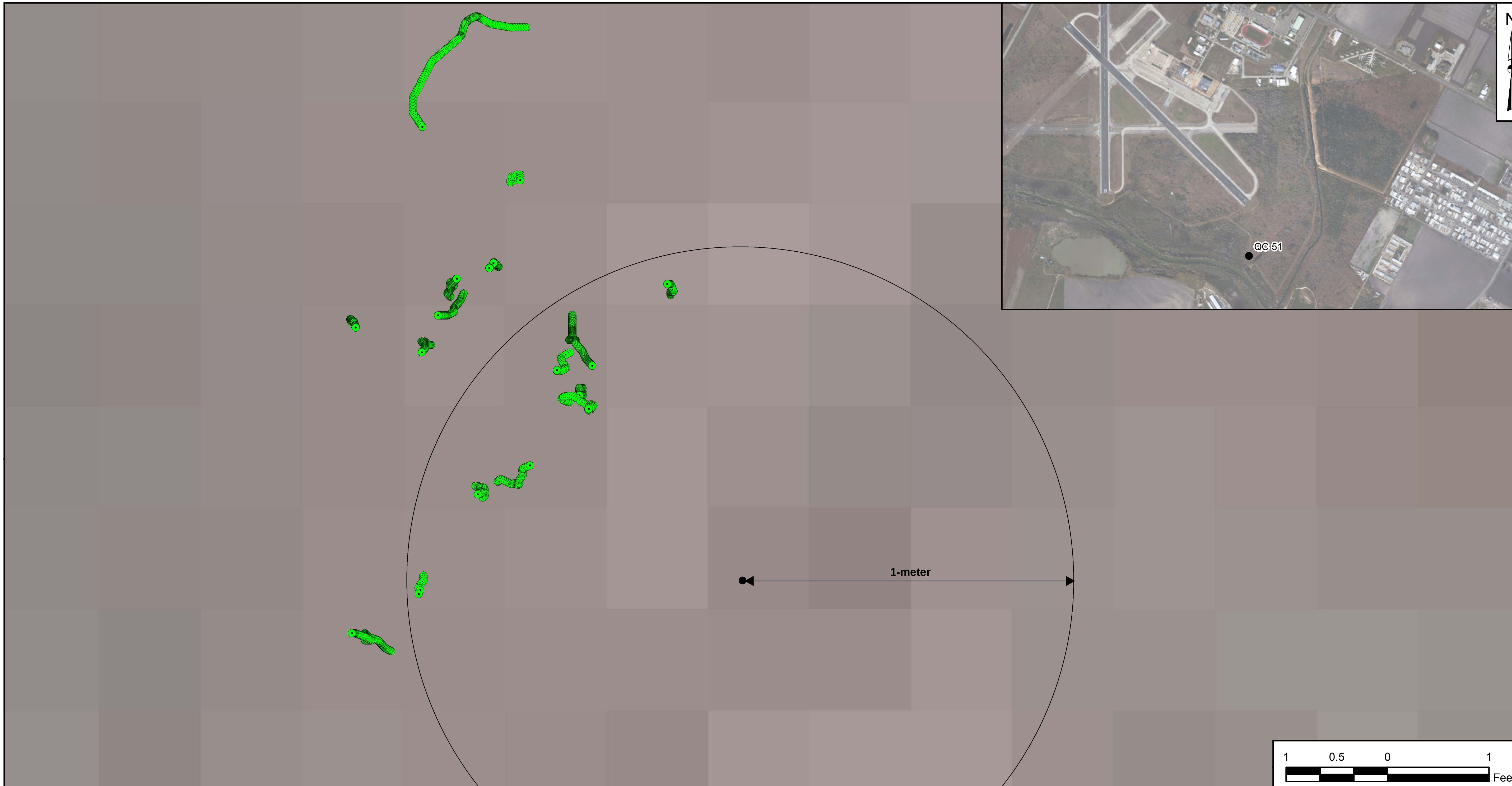
DRAWN BY K. MOORE	DATE 9/8/11
CHECKED BY J. COFFMAN	DATE 02/09/12
COST/SCHEDULE-AREA	
SCALE AS NOTED	

NAVFAC

QC 50-DGM GPS
INCINERATOR AREA
NALF CABANISS
CORPUS CHRISTI, TEXAS

CONTRACT NUMBER CTO 0135	
APPROVED BY __	DATE __
APPROVED BY __	DATE __
FIGURE NO. FIGURE C-6	REV 0

P:\GIS\COURPUSCHRISTI_NAS\MXD\INCINERATOR_QC51.MXD 02/09/12 JN



Legend

- GPS Data for QC Check
- Spike Set #51

DRAWN BY K. MOORE	DATE 9/8/11
CHECKED BY J. COFFMAN	DATE 02/09/12
COST/SCHEDULE-AREA	
SCALE AS NOTED	

NAVFAC

QC 51-DGM GPS
INCINERATOR AREA
NALF CABANISS
CORPUS CHRISTI, TEXAS

CONTRACT NUMBER CTO 0135	
APPROVED BY —	DATE —
APPROVED BY —	DATE —
FIGURE NO. FIGURE C-7	REV 0

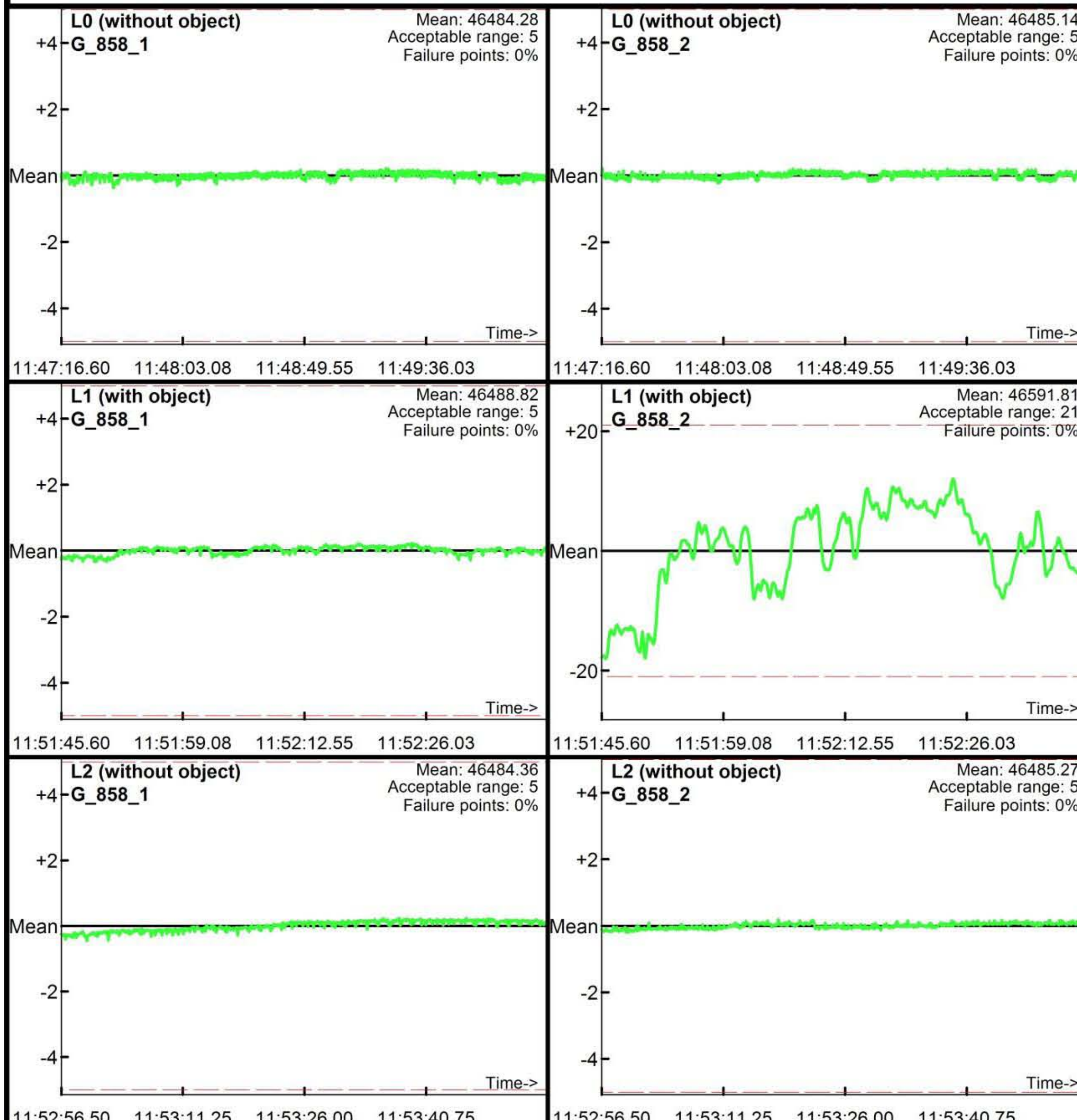
Appendix C-4
Static Background and Static Spike QC Test Data

Static Calibration Test

Project: Incinerator Disposal Site RI
Equipment: Magnetometers
Grid/Location: NALF Cabaniss

Outside range
Acceptable limits

AM test
Operator: James Coffman
Date: 5/23/2011



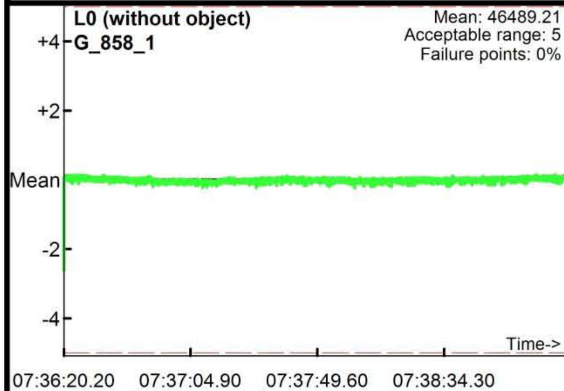
Database: c:\Users\jim.coffman\documents\2011projects\nalfcabaniss\STTC\sttccontouring\5_23.gdb
Line Name: L0 L1 L2

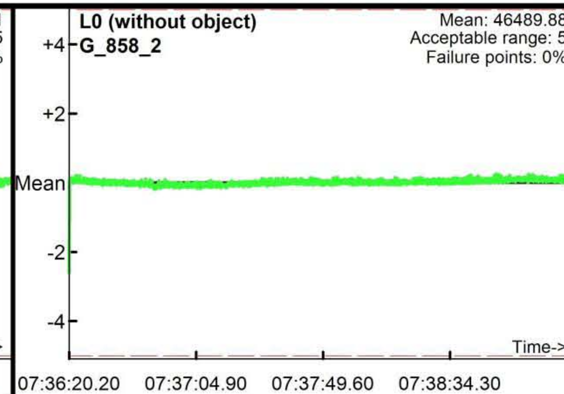
Static Calibration Test

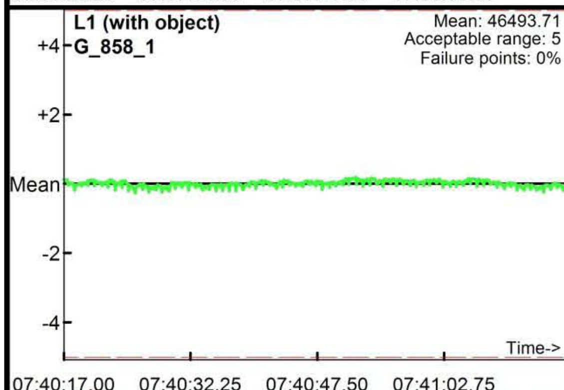
Project: Incinerator Disposal Site RI
Equipment: Magnetometers
Grid/Location: NALF Cabaniss

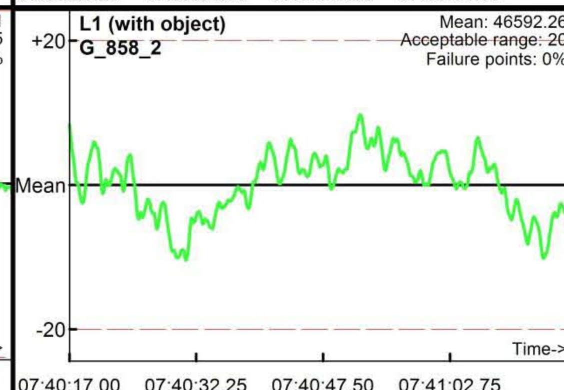
Outside range
Acceptable limits

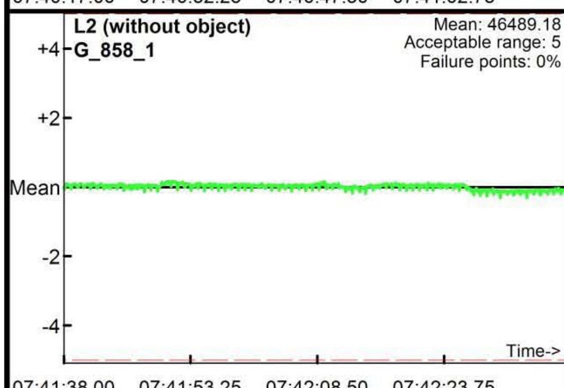
AM test
Operator: James Coffman
Date: 5/24/2011

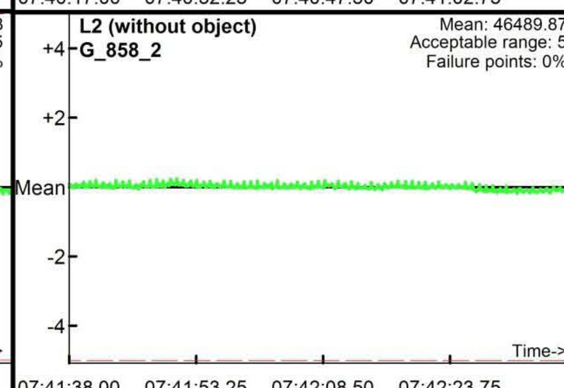












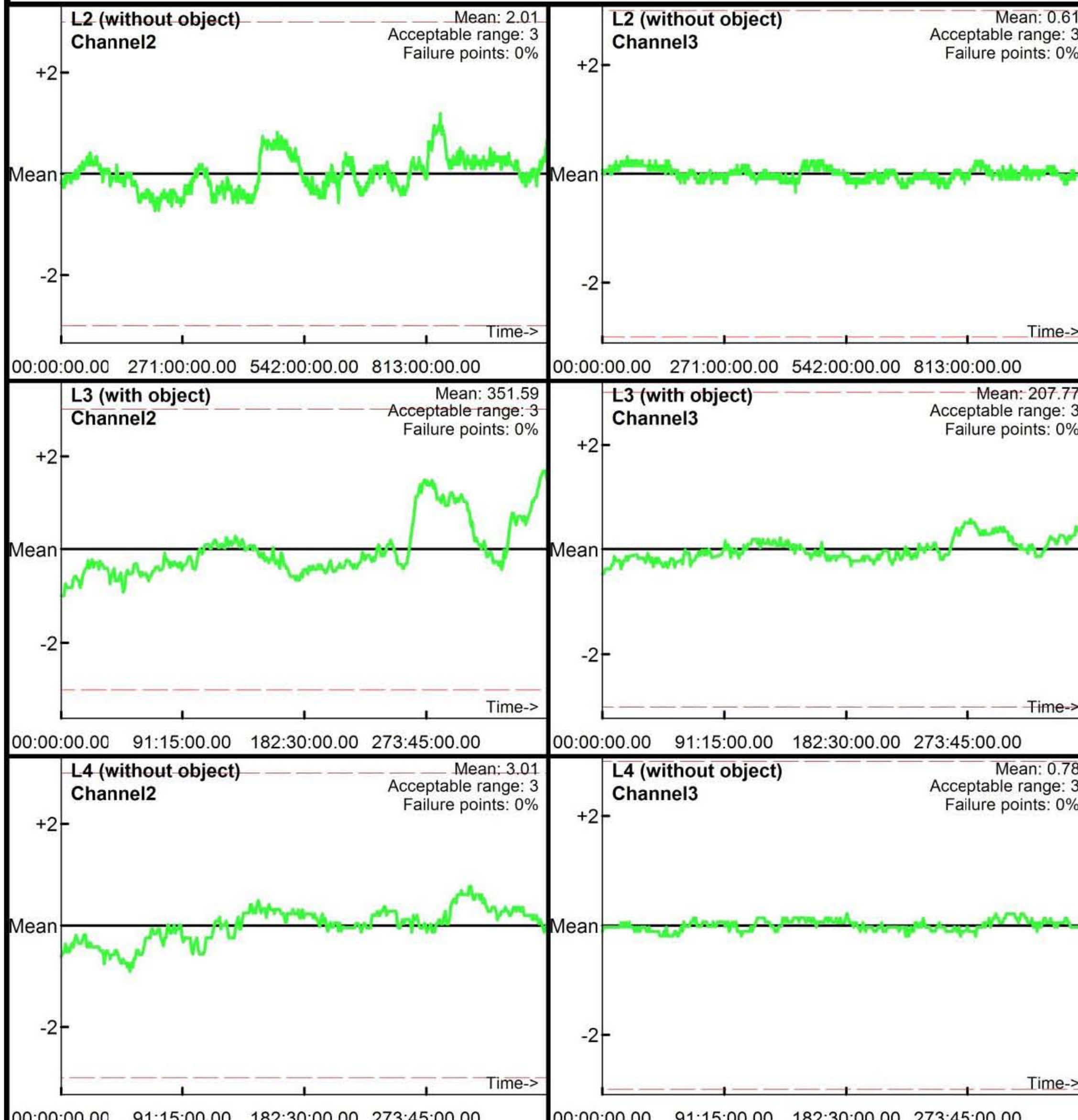
Database: C:\Users\jim.coffman\Documents\2011Projects\NALFcabaniss\STTC\STTCcontouring\5_24.gdb
Line Name: L0 L1 L2

Static Calibration Test

Project: Incinerator Disposal Site RI
Equipment: EM-61 Mark II
Grid/Location: NALF Cabaniss

Outside range
Acceptable limits

AM test
Operator: James Coffman
Date: 5/27/2011



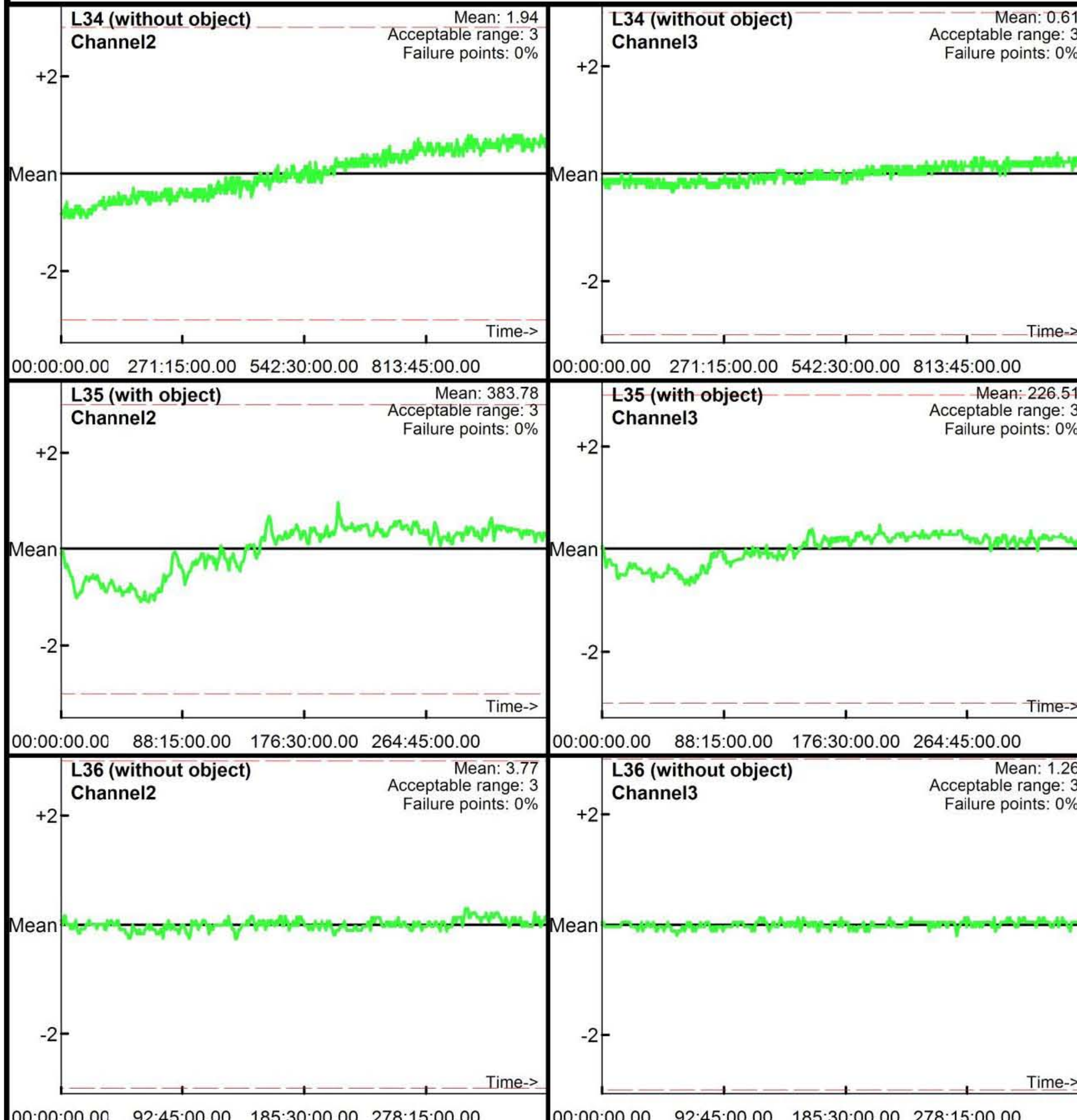
Database: C:\Users\jim.coffman\Documents\2011Projects\NALFcabaniss\STTC\STTCcontouring\5_27_EM61.gdb
Line Name: L2 L3 L4

Static Calibration Test

Project: Incinerator Disposal Site RI
Equipment: EM-61 Mark II
Grid/Location: NALF Cabaniss

Outside range
Acceptable limits

AM test
Operator: James Coffman
Date: 5/28/2011



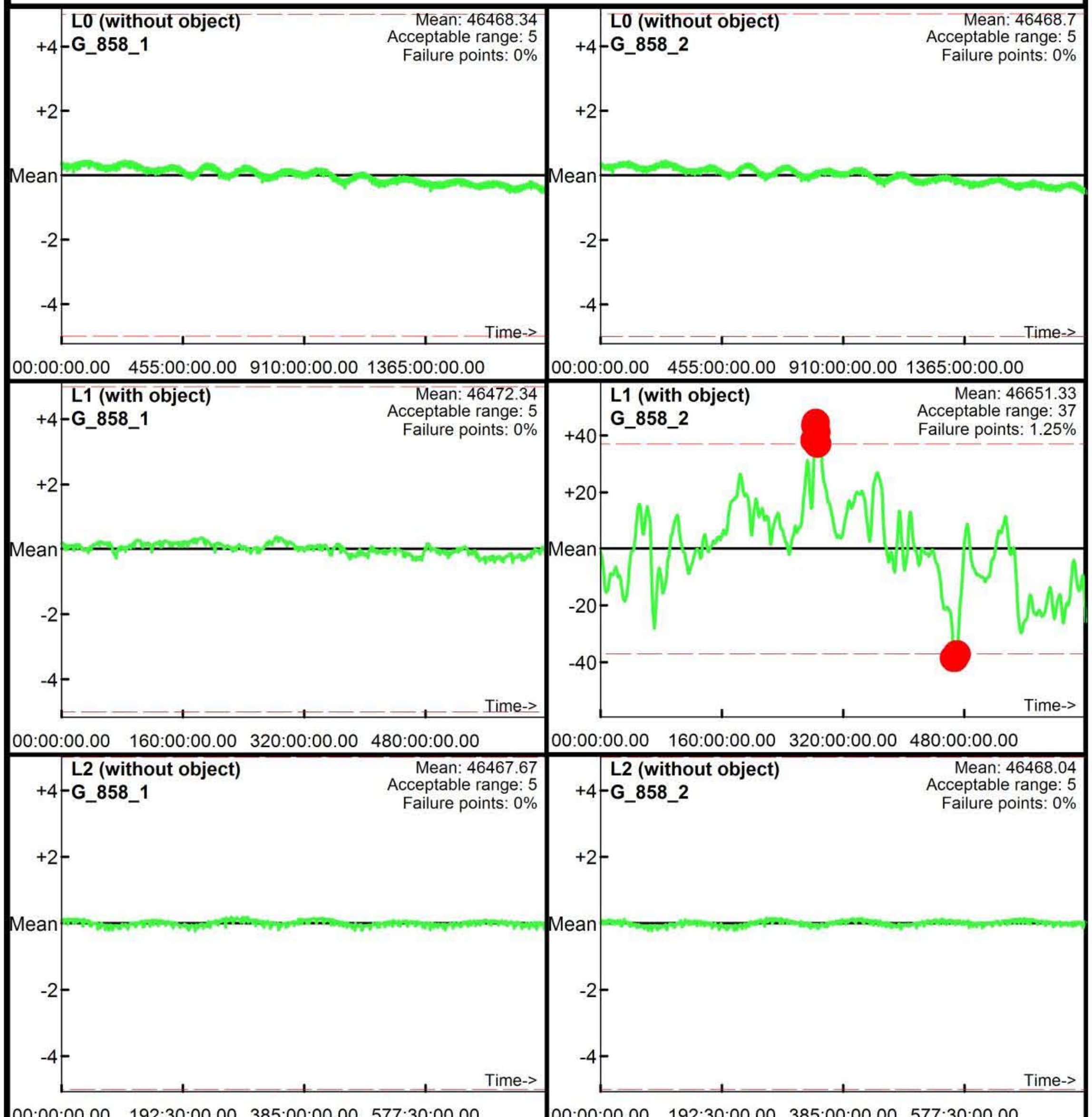
Database: C:\Users\jim.coffman\Documents\2011Projects\NALFcabaniss\STTC\STTCcontouring\5_28_EM61.gdb
Line Name: L34 L35 L36

Static Calibration Test

Project: Incinerator Disposal Site RI
Equipment: Magnetometers
Grid/Location: NALF Cabaniss

Outside range
Acceptable limits

AM test
Operator: James Coffman
Date: 5/28/2011



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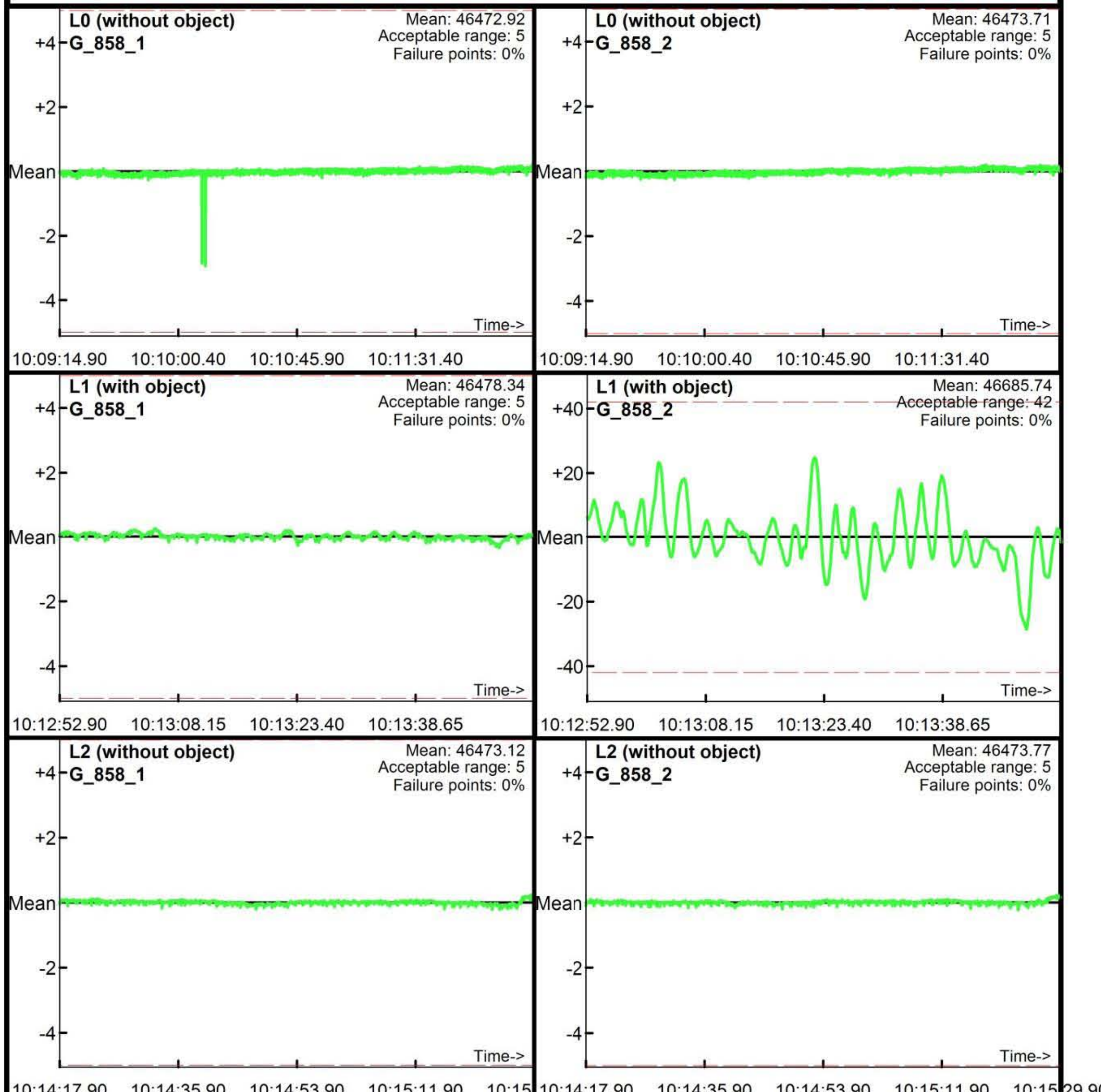
Line Name: L0 L1 L2

Static Calibration Test

Project: Incinerator Disposal Site RI
Equipment: Magnetometers
Grid/Location: NALF Cabaniss

Outside range
Acceptable limits

AM test
Operator: James Coffman
Date: 6/4/2011



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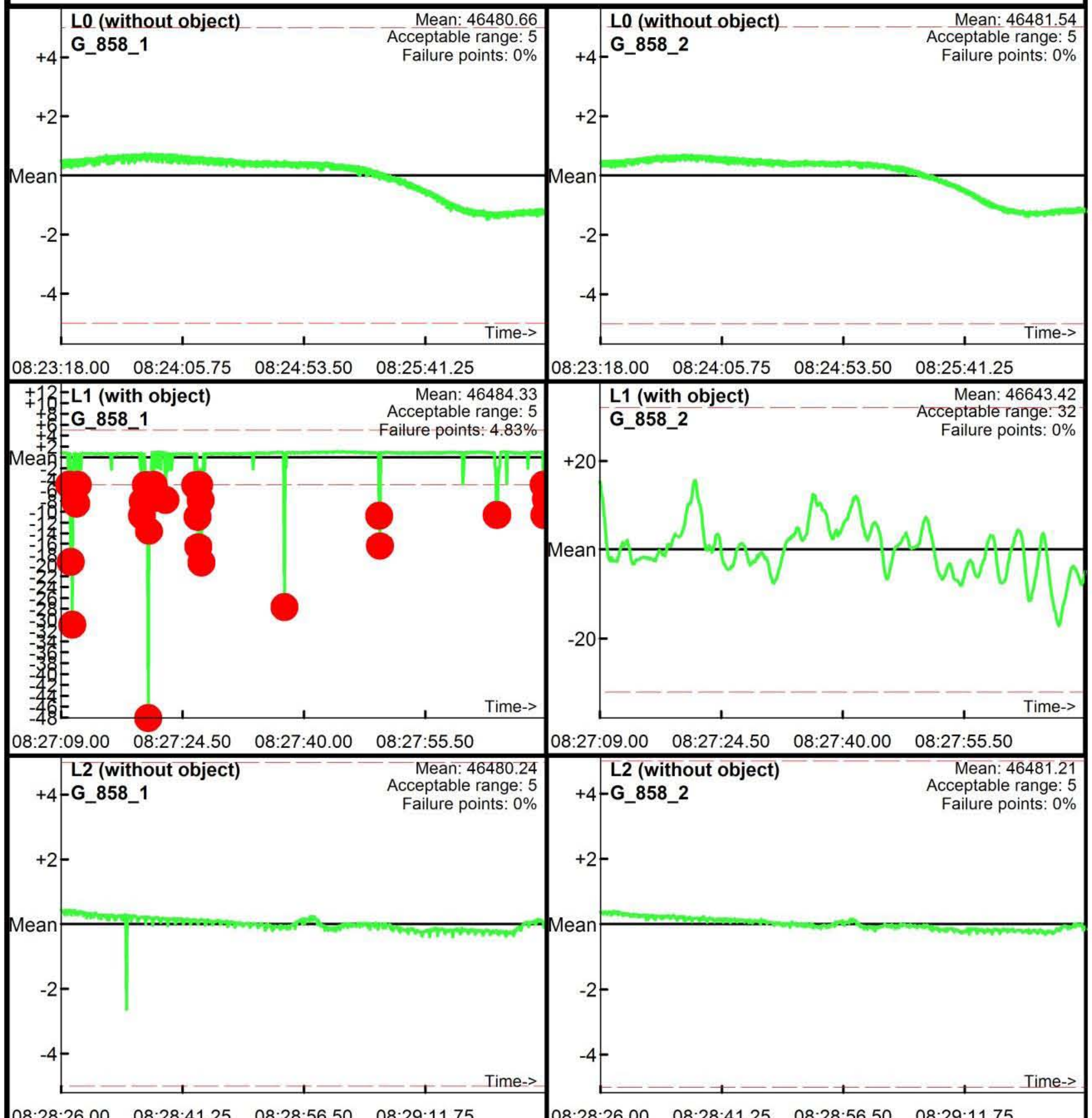
Line Name: L0 L1 L2

Static Calibration Test

Project: Incinerator Disposal Site RI
Equipment: Magnetometers
Grid/Location: NALF Cabaniss

Outside range
Acceptable limits

AM test
Operator: James Coffman
Date: 6/5/2011



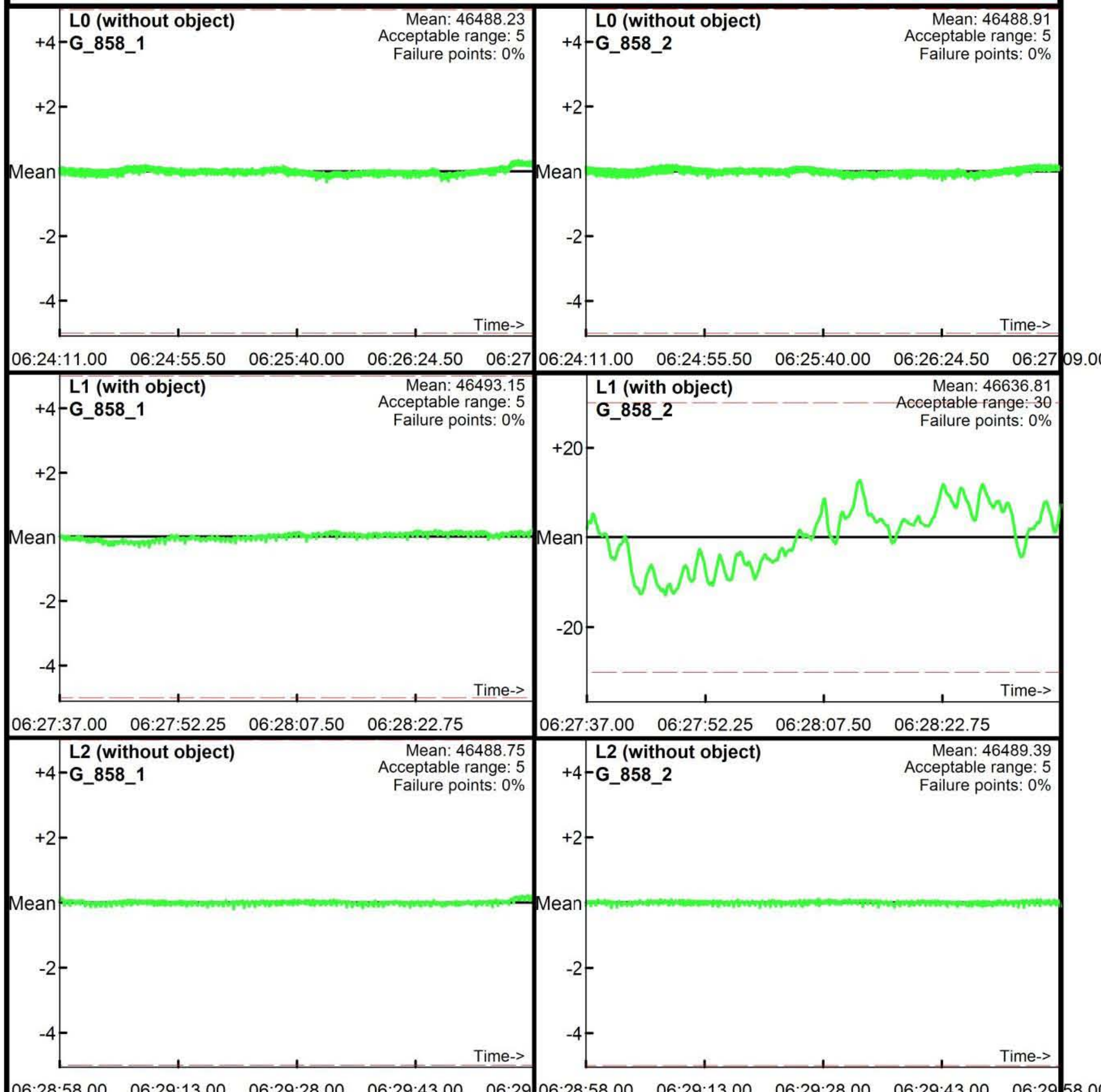
Database: C:\Users\jim.coffman\Documents\2011Projects\NALFcabaniss\STTC\STTCcontouring\6_5.gdb
Line Name: L0 L1 L2
Page: 1

Static Calibration Test

Project: Incinerator Disposal Site RI
Equipment: Magnetometers
Grid/Location: NALF Cabaniss

Outside range
Acceptable limits

AM test
Operator: James Coffman
Date: 6/6/2011



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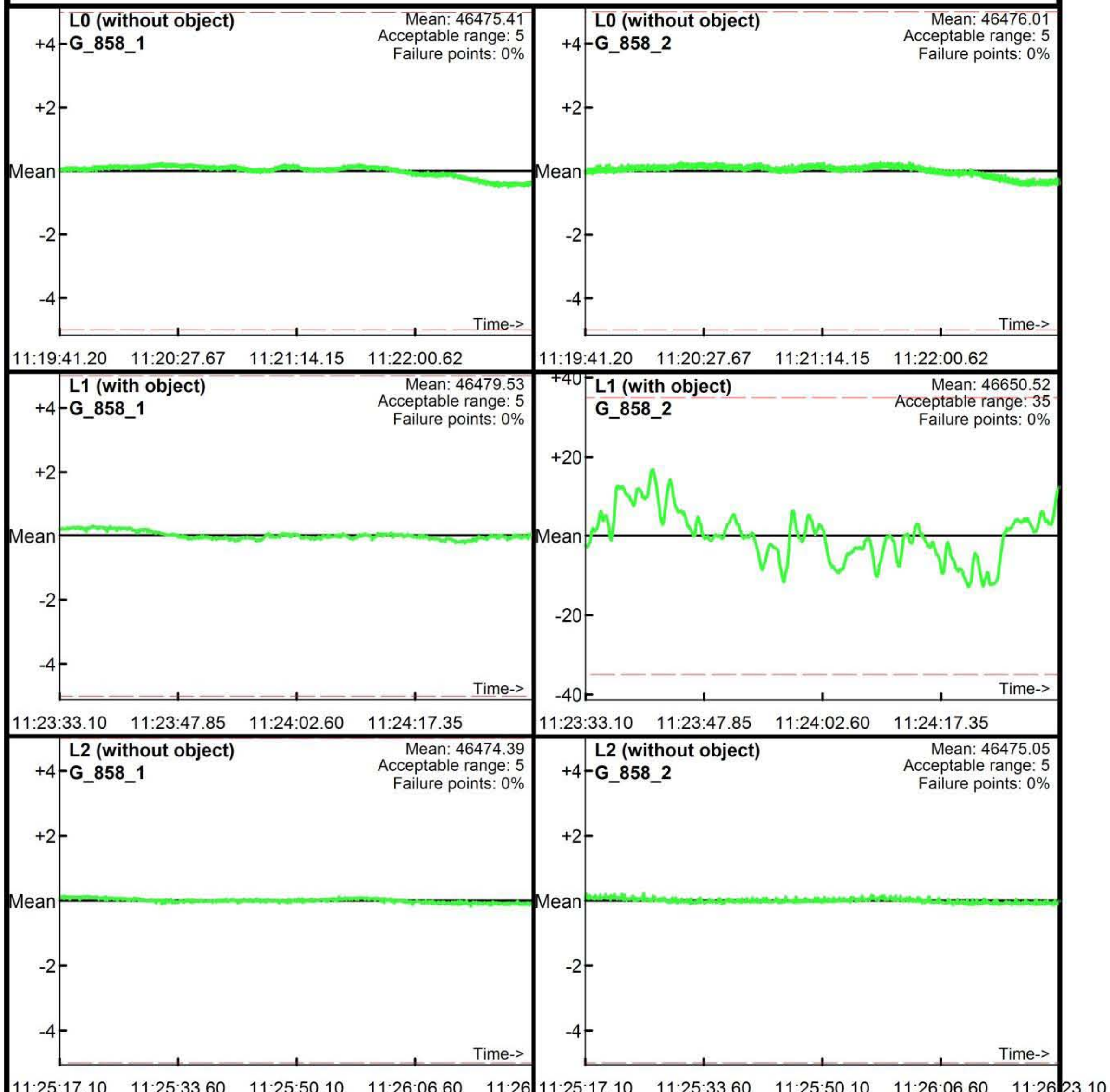
Line Name: L0 L1 L2

Static Calibration Test

Project: Incinerator Disposal Site RI
Equipment: Magnetometers
Grid/Location: NALF Cabaniss

Outside range
Acceptable limits

AM test
Operator: James Coffman
Date: 6/7/2011



Database: C:\Users\jim.coffman\Documents\2011Projects\NALFcabaniss\STTC\STTCcontouring\6_7.gdb
Line Name: L0 L1 L2

Appendix C-5
DGM Field Forms

TETRA TECH NUS, INC.

DAILY QUALITY CONTROL REPORT	
Contract Number:	Project: NALF Cabaniss RI
Location: Corpus Christi, TX	Date: 6/7/11
List Features of Work and Equipment Used, Locations (areas surveyed), and List Personnel Present	
Anomaly reacquisition (3 anomalies) with G-858G + DGPS on Transects 7, 12, 13. Static/IVS/GPS QC checks completed.	
Rework Items Identified Today (Not Corrected by Close of Business)	Rework Items Corrected Today
Remarks/Describe any Idle or Downtime and/or Equipment Problems	
On behalf of the contractor, I certify that this report is complete and correct and the equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.	TT ~~ERT~~ Representative: James D. Coffman Date: 6/7/11
Tetra Tech Quality Assurance	
Quality Assurance Representative Remarks and/or Exceptions to the Report	
Inspection of Field Activities Performed	Tetra Tech QA Representative ____ Date ____

TETRA TECH NUS, INC.

Checklist for Daily Instrument Checks

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi, TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 6/7/11

Has the operator been checked for presence of metal?	Y	N	NA
Has the instrument been warmed-up?	Y	N	NA
Have the sensor positions been measured and recorded?	Y	N	NA
Has a static background and spike test been performed successfully?	Y	N	NA
Has the equipment function test been performed with detection of all the test targets? IVS	Y	N	NA
Have all loose cables been secured?	Y	N	NA
Has the EM61 been nulled (power on)?	NA		
Has the G-858 been set up according to manufacturer's specifications?	Y	N	NA
Were the data monitored during data collection for anything unusual?	Y	N	NA

TETRA TECH NUS, INC.

Checklist for Field Editing

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi, TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 6/7/11

Have the following items been evaluated for correctness and edited if necessary:

	Y	N	NA
Line numbers?	Y	N	NA
Start and end points?	Y	N	NA
Line direction?	Y	N	NA
Fiducial locations?	Y	N	NA
Have the data been examined for geophysical noise?	Y	N	NA
Have the data been examined for the presence of drop-outs and spikes?	Y	N	NA
Have the edited data been converted to the appropriate .xyz format?	Y	N	NA

If using magnetics, have the following steps been taken:

	Y	N	NA
Examined base station data for any problems?	Y	N	NA
Performed diurnal correction to field magnetometer data?	Y	N	NA
Have the positional data been evaluated for accuracy and completeness?	Y	N	NA

TETRA TECH NUS, INC.

DAILY QUALITY CONTROL REPORT	
Contract Number:	Project: NALF Cabaniss RI
Location: Corpus Christi, TX	Date: 6/6/11

List Features of Work and Equipment Used, Locations (areas surveyed), and List Personnel Present

Anomaly reacquisition (24 anomalies) with G-858G & DGPS on Transects 17-24. Static/IVS/GPS QC checks completed. Also, see rework below for additional 5 anomalies revisited.

Rework Items Identified Today (Not Corrected by Close of Business)	Rework Items Corrected Today
	Captured 5 anomalies not recorded 6/5/11 - GPS cable (power cable) diagnosed & secured to make measurements.

Remarks/Describe any Idle or Downtime and/or Equipment Problems

On behalf of the contractor, I certify that this report is complete and correct and the equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.

TtNUS ~~ERT~~ Representative: James D. Coffman

Date: 6/6/11

Tetra Tech Quality Assurance

Quality Assurance Representative Remarks and/or Exceptions to the Report

Inspection of Field Activities Performed

Tetra Tech QA Representative

Date

TETRA TECH NUS, INC.

Checklist for Daily Instrument Checks

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi, TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 6/6/11

Has the operator been checked for presence of metal?	Y	N	NA
Has the instrument been warmed-up?	Y	N	NA
Have the sensor positions been measured and recorded?	Y	N	NA
Has a static background and spike test been performed successfully?	Y	N	NA
Has the equipment function test been performed with detection of all the test targets? 1 US	Y	N	NA
Have all loose cables been secured?	Y	N	NA
Has the EM61 been nulled (power on)?	NA		
Has the G-858 been set up according to manufacturer's specifications?	Y	N	NA
Were the data monitored during data collection for anything unusual?	Y	N	NA

TETRA TECH NUS, INC.

Checklist for Field Editing

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi, TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 6/6/11

Have the following items been evaluated for correctness and edited if necessary:

Line numbers?	Y	N	NA
Start and end points?	Y	N	NA
Line direction?	Y	N	NA
Fiducial locations?	Y	N	NA
Have the data been examined for geophysical noise?	Y	N	NA
Have the data been examined for the presence of drop-outs and spikes?	Y	N	NA
Have the edited data been converted to the appropriate .xyz format?	Y	N	NA

If using magnetics, have the following steps been taken:

Examined base station data for any problems?	Y	N	NA
Performed diurnal correction to field magnetometer data?	Y	N	NA
Have the positional data been evaluated for accuracy and completeness?	Y	N	NA

TETRA TECH NUS, INC.

DAILY QUALITY CONTROL REPORT

Contract Number:	Project: NALF Cabaniss RI
Location: Corpus Christi, Tx	Date: 6/5/11

List Features of Work and Equipment Used, Locations (areas surveyed), and List Personnel Present

G-858G

Anomaly reacquisition (29 anomalies) with G-858G & DGPS on Transects 9-16. Static/IVS/GPS QC checks completed.

Rework Items Identified Today (Not Corrected by Close of Business)	Rework Items Corrected Today
5 of 29 anomalies did not have GPS measurement capture - suspected GPS cable problem.	

Remarks/Describe any Idle or Downtime and/or Equipment Problems

On behalf of the contractor, I certify that this report is complete and correct and the equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.

tt ~~ERT~~ Representative: James D. Coffman — Date: 6/5/11

Tetra Tech Quality Assurance

Quality Assurance Representative Remarks and/or Exceptions to the Report

Inspection of Field Activities Performed

Tetra Tech QA Representative — Date

TETRA TECH NUS, INC.

Checklist for Field Editing

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi, TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 6/5/11

Have the following items been evaluated for correctness and edited if necessary:

Line numbers?	Y	N	NA
Start and end points?	Y	N	NA
Line direction?	Y	N	NA
Fiducial locations?	Y	N	NA

Have the data been examined for geophysical noise?	Y	N	NA
Have the data been examined for the presence of drop-outs and spikes?	Y	N	NA
Have the edited data been converted to the appropriate .xyz format?	Y	N	NA

If using magnetics, have the following steps been taken:

Examined base station data for any problems?	Y	N	NA
Performed diurnal correction to field magnetometer data?	Y	N	NA

Have the positional data been evaluated for accuracy and completeness?	Y	N	NA

TETRA TECH NUS, INC.

Checklist for Daily Instrument Checks

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi, TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 6/5/11

Has the operator been checked for presence of metal?	Y	N	NA
Has the instrument been warmed-up?	Y	N	NA
Have the sensor positions been measured and recorded?	Y	N	NA
Has a static background and spike test been performed successfully?	Y	N	NA
Has the equipment function test been performed with detection of all the test targets? 1/1/5	Y	N	NA
Have all loose cables been secured?	Y	N	NA
Has the EM61 been nulled (power on)?	NA		
Has the G-858 been set up according to manufacturer's specifications?	Y	N	NA
Were the data monitored during data collection for anything unusual?	Y	N	NA

TETRA TECH NUS, INC.

DAILY QUALITY CONTROL REPORT	
Contract Number:	Project: NALF Cabaniss, RI
Location: Corpus Christi, TX	Date: 6/4/11

List Features of Work and Equipment ~~Used, Locations~~ (areas surveyed), and List Personnel Present

~~G-858G~~

Anomaly reacquisition (20 anomalies) with magnetometer (G-858G) & DG15 (Transects 1-8). Static/IVS/GPS QC checks completed.

Rework Items Identified Today (Not Corrected by Close of Business)	Rework Items Corrected Today

Remarks/Describe any Idle or Downtime and/or Equipment Problems

On behalf of the contractor, I certify that this report is complete and correct and the equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.	James D. Coffran, TK ~~ERT~~ Representative; Date 6/4/11

Tetra Tech Quality Assurance

Quality Assurance Representative Remarks and/or Exceptions to the Report

Inspection of Field Activities Performed	Tetra Tech QA Representative; Date

TETRA TECH NUS, INC.

Checklist for Daily Instrument Checks

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 6/4/11

Has the operator been checked for presence of metal?	Y	N	NA
Has the instrument been warmed-up?	Y	N	NA
Have the sensor positions been measured and recorded?	Y	N	NA
Has a static background and spike test been performed successfully?	Y	N	NA
Has the equipment function test been performed with detection of all the test targets? IVS	Y	N	NA
Have all loose cables been secured?	Y	N	NA
Has the EM61 been nulled (power on)?	NA		
Has the G-858 been set up according to manufacturer's specifications?	Y	N	NA
Were the data monitored during data collection for anything unusual?	Y	N	NA

TETRA TECH NUS, INC.

Checklist for Field Editing

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 6/4/11

Have the following items been evaluated for correctness and edited if necessary:

Line numbers?	Y	N	NA
Start and end points?	Y	N	NA
Line direction?	Y	N	NA
Fiducial locations?	Y	N	NA
Have the data been examined for geophysical noise?	Y	N	NA
Have the data been examined for the presence of drop-outs and spikes?	Y	N	NA
Have the edited data been converted to the appropriate .xyz format?	Y	N	NA

If using magnetics, have the following steps been taken:

Examined base station data for any problems?	Y	N	NA	Reacquisition only
Performed diurnal correction to field magnetometer data?	Y	N	NA	
Have the positional data been evaluated for accuracy and completeness?	Y	N	NA	

TETRA TECH NUS, INC.

DAILY QUALITY CONTROL REPORT	
Contract Number:	Project: NALF Cabaniss RI
Location: Corpus Christi, TX	Date: 5/26/11

List Features of Work and Equipment Used, Locations (areas surveyed), and List Personnel Present

EM31-MK2

GPS QC check and Baseline Test (2x - before & after survey grid work). EM31 survey of transects 17-24. DGM blind seeds - 18 out of 18 detected (online items). 2 seeds were buried offline on Transects 8 + 20, 4 ft offset & 22 inches offset respectively. These two buried seeds don't qualify for DGM blind seed program - SAP requires on line burial, and minimum # of blind seeds 1 per 1/2 mile of transect (~7) to meet SAP requirement.

Rework Items Identified Today (Not Corrected by Close of Business)	Rework Items Corrected Today
	18 qualified seeds for DGM program greatly exceeds this QC requirement. 5/24 QC report mentions Transect 8 rework, but this was not needed as seed was offset 4' from line.

Remarks/Describe any Idle or Downtime and/or Equipment Problems

Old version of DAT31 provided with equipment. Obtain new version of DAT31 so all of yesterday's data could be mapped.

On behalf of the contractor, I certify that this report is complete and correct and the equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.	James D. [illegible] for ~~ERT~~ Representative 5/26/11 Date

Tetra Tech Quality Assurance

Quality Assurance Representative Remarks and/or Exceptions to the Report

Inspection of Field Activities Performed	
	Tetra Tech QA Representative Date

TETRA TECH NUS, INC.

Checklist for Daily Instrument Checks

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 5/26/11

	Y	N	NA
Has the operator been checked for presence of metal?	Y	N	NA
Has the instrument been warmed-up?	Y	N	NA
Have the sensor positions been measured and recorded?	Y	N	NA
Has a static background and spike test been performed successfully?	Y	N	NA
Has the equipment function test been performed with detection of all the test targets?	Y	N	NA
Have all loose cables been secured?	Y	N	NA
Has the EM61 been nulled (power on)?			NA
Has the G-858 been set up according to manufacturer's specifications?	Y	N	NA
Were the data monitored during data collection for anything unusual?	Y	N	NA

TETRA TECH NUS, INC.

Checklist for Field Editing

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi, TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 5/26/11

Have the following items been evaluated for correctness and edited if necessary:

Line numbers?	Y	N	NA
Start and end points?	Y	N	NA
Line direction?	Y	N	NA
Fiducial locations?	Y	N	NA

Have the data been examined for geophysical noise?	Y	N	NA
Have the data been examined for the presence of drop-outs and spikes?	Y	N	NA
Have the edited data been converted to the appropriate .xyz format?	Y	N	NA

If using magnetics, have the following steps been taken:

Examined base station data for any problems?	Y	N	NA
Performed diurnal correction to field magnetometer data?	Y	N	NA

Have the positional data been evaluated for accuracy and completeness?	Y	N	NA

TETRA TECH NUS, INC.

DAILY QUALITY CONTROL REPORT	
Contract Number:	Project: NALF Cabaniss RI
Location: Corpus Christi, TX	Date: 5/25/11

List Features of Work and Equipment Used, Locations (areas surveyed), and List Personnel Present

GPS QC checks with EM31-MK2. Setup & calibrate EM31-MK2 in non-anomalous area. Run Baseline test line. Survey transects 1-16.

Rework Items Identified Today (Not Corrected by Close of Business)	Rework Items Corrected Today
NA	NA

Remarks/Describe any Idle or Downtime and/or Equipment Problems

On behalf of the contractor, I certify that this report is complete and correct and the equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.

James D. Coffman 5/25/11

~~ERT~~ TT Representative Date

Tetra Tech Quality Assurance

Quality Assurance Representative Remarks and/or Exceptions to the Report

Inspection of Field Activities Performed

Tetra Tech QA Representative Date

TETRA TECH NUS, INC.

Checklist for Daily Instrument Checks

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi, TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 5/25/11

	Y	N	NA
Has the operator been checked for presence of metal?	Y	N	NA
Has the instrument been warmed-up?	Y	N	NA
Have the sensor positions been measured and recorded?	Y	N	NA
Has a static background and spike test been performed successfully?	Y	N	NA
Has the equipment function test been performed with detection of all the test targets?	Y	N	NA
Have all loose cables been secured?	Y	N	NA
Has the EM61 been nulled (power on)?	NA		
Has the G-858 been set up according to manufacturer's specifications?	Y	N	NA
Were the data monitored during data collection for anything unusual?	Y	N	NA

TETRA TECH NUS, INC.

Checklist for Field Editing

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi, TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 5/25/11

Have the following items been evaluated for correctness and edited if necessary:

Line numbers?	Y	N	NA
Start and end points?	Y	N	NA
Line direction?	Y	N	NA
Fiducial locations?	Y	N	NA

Have the data been examined for geophysical noise?	Y	N	NA
Have the data been examined for the presence of drop-outs and spikes?	Y	N	NA
Have the edited data been converted to the appropriate .xyz format?	Y	N	NA

If using magnetics, have the following steps been taken:

Examined base station data for any problems?	Y	N	NA
Performed diurnal correction to field magnetometer data?	Y	N	NA

Have the positional data been evaluated for accuracy and completeness?	Y	N	NA

TETRA TECH NUS, INC.

DAILY QUALITY CONTROL REPORT	
Contract Number:	Project: NALF Cabaniss RI
Location: Corpus Christi, TX	Date: 5/24/11

List Features of Work and Equipment Used, Locations (areas surveyed), and List Personnel Present

G-858G magnetometer

QC for GPS positioning at QC50 & 51. Equipment setup & QC tests (WS 22) & IVS survey. Repeat GPS QC. Transects 9-24 performed with G-858G.

Rework Items Identified Today (Not Corrected by Close of Business)	Rework Items Corrected Today
Transect 8 redo results pending	Transect 8 repeated from 5/23 survey - blind seed potential miss

Remarks/Describe any Idle or Downtime and/or Equipment Problems

On behalf of the contractor, I certify that this report is complete and correct and the equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.	~~ERT~~ TtNUS Representative: James D. Laffoon	Date: 5/24/11

Tetra Tech Quality Assurance

Quality Assurance Representative Remarks and/or Exceptions to the Report

Inspection of Field Activities Performed	
	Tetra Tech QA Representative Date

TETRA TECH NUS, INC.

Checklist for Daily Instrument Checks

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi, TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 5/24/11

Has the operator been checked for presence of metal?	Y	N	NA
Has the instrument been warmed-up?	Y	N	NA
Have the sensor positions been measured and recorded?	Y	N	NA
Has a static background and spike test been performed successfully?	Y	N	NA
Has the equipment function test been performed with detection of all the test targets? IVS	Y	N	NA
Have all loose cables been secured?	Y	N	NA
Has the EM61 been nulled (power on)?	NA		
Has the G-858 been set up according to manufacturer's specifications?	Y	N	NA
Were the data monitored during data collection for anything unusual?	Y	N	NA

TETRA TECH NUS, INC.

Checklist for Field Editing

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi, TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 5/24/11

Have the following items been evaluated for correctness and edited if necessary:

Line numbers?	Y	N	NA
Start and end points?	Y	N	NA
Line direction?	Y	N	NA
Fiducial locations?	Y	N	NA

Have the data been examined for geophysical noise?	Y	N	NA
Have the data been examined for the presence of drop-outs and spikes?	Y	N	NA
Have the edited data been converted to the appropriate .xyz format?	Y	N	NA

If using magnetics, have the following steps been taken:

Examined base station data for any problems?	Y	N	NA
Performed diurnal correction to field magnetometer data?	Y	N	NA

Have the positional data been evaluated for accuracy and completeness?	Y	N	NA

TETRA TECH NUS, INC.

Checklist for Field Editing

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi, TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 5/23/11

Have the following items been evaluated for correctness and edited if necessary:

Line numbers?	Y	N	NA
Start and end points?	Y	N	NA
Line direction?	Y	N	NA
Fiducial locations?	Y	N	NA

Have the data been examined for geophysical noise?	Y	N	NA
Have the data been examined for the presence of drop-outs and spikes?	Y	N	NA
Have the edited data been converted to the appropriate .xyz format?	Y	N	NA

If using magnetics, have the following steps been taken:

Examined base station data for any problems?	Y	N	NA
Performed diurnal correction to field magnetometer data?	Y	N	NA

Have the positional data been evaluated for accuracy and completeness?	Y	N	NA

TETRA TECH NUS, INC.

DAILY QUALITY CONTROL REPORT		
Contract Number:	Project: NALF Cabaniss RI	
Location: Corpus Christi, TX		Date: 5/23/11

List Features of Work and Equipment Used, Locations (areas surveyed), ~~and~~ List Personnel Present

[G-858 G magnetometer]

QC for GPS positioning at established control pts. QC 50 + QC51. Equip. setup + QC tests (WS 22) + IVS survey - all QC successful (seeds detected). Transects 1-8 (as-accessible) performed with G-858G.

Rework Items Identified Today (Not Corrected by Close of Business)	Rework Items Corrected Today
N/A	NA

Remarks/Describe any Idle or Downtime and/or Equipment Problems

NA

On behalf of the contractor, I certify that this report is complete and correct and the equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.	[signature] TERT Representative	5/23/11 Date

Tetra Tech Quality Assurance

Quality Assurance Representative Remarks and/or Exceptions to the Report

Inspection of Field Activities Performed	
	Tetra Tech QA Representative Date

TETRA TECH NUS, INC.

Checklist for Out of Box Equipment Tests

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi, TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 5/23/11

Has the equipment been inventoried and inspected for damage or wear? Y N NA

Are spare parts (cables) included with the system? Y N NA

Has the cable shake test been performed? (Replace any fault components) Y N NA

TETRA TECH NUS, INC.

Checklist for Initial Instrument Tests

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi, TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 5/23/11

Has the sensor travel test been performed (for underwater surveys), and are the results acceptable to meet survey objectives?	Y	N	NA
Has the GPS unit been checked for accuracy requirements against two known locations?	Y	N	NA
Has the optimum sensor height for each instrument been determined?	Y	N	NA
Have the pull-away and/or interferences tests been performed and successfully demonstrated no influence for navigational or towing equipment?	Y	N	NA
Has an appropriate data acquisition rate been selected?	Y	N	NA

TETRA TECH NUS, INC.

IVS Checklist

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi, TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 5/23/11

Objectives

Have survey objectives been determined, clarified, and documented? Y N NA

Will the IVS be available during the project for the evaluation of suspected instrument malfunctions or evaluation of new equipment and operators? Y N NA

Site Preparation

Has surface clearance been performed? Y N NA

Has background geophysical survey been performed before burial? Y N NA

IVS Seeding

Have the following steps been taken to ensure accurate locations for the seeded items:

- Thorough notes taken on each item's burial? Y N NA
- Measure depth to top and center of mass of each object? Y N NA
- GPS or a land surveyor employed to record the position of each item? Y N NA

TETRA TECH NUS, INC.

DAILY INSTRUMENT	IVS REPORT		
Project Name:	**Project No:**	**Location:**	**Date:**
NALF Cabaniss RI		Corpus Christi, TX	5/23/11

I. Test Plot Information

Item Number	Inert Item/Surrogate Description	Depth (inches)	Azimuth/ Inclination Angle(Degrees)	Comments
1	Large ISO		horizontal	pipe section
2	Medium ISO		"	" "
3	Aluminum Seed		"	
4	Small ISO		"	pipe section
5				
6				
7				
8				

II. Instrument Information

Instrument Type/Manufacture	Instrument Serial Number	Test Plot Items Instrument Tested on (List Item Numbers)	Settings On Instrument Tested (As Per WP)	Test Results, ☒ indicates good for operation	Personnel Testing Equipment	Comments
Geometrics G-858G	S/N 29019 sensor 1 S/N C1848 Sensor 2 S/N C173	1, 2, 4	10 reads/s vertical gradient	☒	Jim Coffman	Confirm loc for seed 4
				☐		
				☐		
				☐		

III. Problems Encountered / Corrective Actions Taken / Additional Comments.
explain in space below:

seed 4 location to be confirmed

IV. Supervisor

Name and Signature:	Title/Company:	Date:

TETRA TECH NUS, INC.

Checklist for Daily Instrument Checks

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi, TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 5/23/11

Has the operator been checked for presence of metal?	Y	N	NA
Has the instrument been warmed-up?	Y	N	NA
Have the sensor positions been measured and recorded?	Y	N	NA
Has a static background and spike test been performed successfully?	Y	N	NA
Has the equipment function test been performed with detection of all the test targets?	Y	N	NA
Have all loose cables been secured?	Y	N	NA
Has the EM61 been nulled (power on)?			NA
Has the G-858 been set up according to manufacturer's specifications?	Y	N	NA
Were the data monitored during data collection for anything unusual?	Y	N	NA

TETRA TECH NUS, INC.

DAILY QUALITY CONTROL REPORT

Contract Number:	Project: NALF Cabaniss RI
Location: Corpus Christi, TX	Date: 5/29/11

List Features of Work and Equipment Used, Locations (areas surveyed), and List Personnel Present

Today's fieldwork was to tie-in aboveground debris and metal using DGPS built with MAG sensor. GPS QC test performed on QC50 & QC51. Seventy six locations of debris/metal tied-in with GPS.

Rework Items Identified Today (Not Corrected by Close of Business)	Rework Items Corrected Today

Remarks/Describe any Idle or Downtime and/or Equipment Problems

On behalf of the contractor, I certify that this report is complete and correct and the equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.

James D. Coffman — ~~ERT~~ TT Representative — Date 5/29/11

Tetra Tech Quality Assurance

Quality Assurance Representative Remarks and/or Exceptions to the Report

Inspection of Field Activities Performed

Tetra Tech QA Representative ____________ Date ____________

TETRA TECH NUS, INC.

Checklist for Daily Instrument Checks

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi, TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 5/29/11

Has the operator been checked for presence of metal?	Y	N	NA
Has the instrument been warmed-up?	Y	N	NA
Have the sensor positions been measured and recorded?	Y	N	NA
Has a static background and spike test been performed successfully?	Y	N	NA GPS only data collected
Has the equipment function test been performed with detection of all the test targets?	Y	N	NA "
Have all loose cables been secured?	Y	N	NA
Has the EM61 been nulled (power on)?	NA		
Has the G-858 been set up according to manufacturer's specifications?	Y	N	NA
Were the data monitored during data collection for anything unusual?	Y	N	NA

TETRA TECH NUS, INC.

Checklist for Field Editing

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi, TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 5/29/11

Have the following items been evaluated for correctness and edited if necessary:

Line numbers?	Y	N	NA
Start and end points?	Y	N	NA
Line direction?	Y	N	NA
Fiducial locations?	Y	N	NA
Have the data been examined for geophysical noise?	Y	N	NA GPS only data collected
Have the data been examined for the presence of drop-outs and spikes?	Y	N	NA
Have the edited data been converted to the appropriate .xyz format?	Y	N	NA

If using magnetics, have the following steps been taken:

Examined base station data for any problems?	Y	N	NA
Performed diurnal correction to field magnetometer data?	Y	N	NA
Have the positional data been evaluated for accuracy and completeness?	Y	N	NA

TETRA TECH NUS, INC.

DAILY QUALITY CONTROL REPORT	
Contract Number:	Project: NALF Cabaniss RI
Location: Corpus Christi, TX	Date: 5/28/11

List Features of Work and Equipment ~~Used, Locations (areas~~ surveyed), and List Personnel Present

EM61-MK2

WS 22 tests and checks. IVS collected & meas. responses > response curves. Survey transects 12-1. Survey sections of transects 5 & 6 not previously available due to surface munitions with EM31 and G-858G.

Rework Items Identified Today (Not Corrected by Close of Business)	Rework Items Corrected Today

Remarks/Describe any Idle or Downtime and/or Equipment Problems

On behalf of the contractor, I certify that this report is complete and correct and the equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.

James D. Coffman 5/28/11

ERT Representative Date

Tetra Tech Quality Assurance

Quality Assurance Representative Remarks and/or Exceptions to the Report

Inspection of Field Activities Performed

Tetra Tech QA Representative Date

TETRA TECH NUS, INC.

DAILY INSTRUMENT	IVS REPORT

Project Name:	Project No:	Location:	Date:
NALF Cabaniss RI		Corpus Christi, TX	5/28/11

I. Test Plot Information

Item Number	Inert Item/Surrogate Description	Depth (inches)	Azimuth/ Inclination Angle(Degrees)	Comments
1	Large ISO	16	horizontal	pipe section
2	Medium ISO	8	"	"
3	Aluminum Seed	4	"	
4	small ISO	4	"	pipe section
5				
6				
7				
8				

II. Instrument Information

Instrument Type/Manufacture	Instrument Serial Number	Test Plot Items Instrument Tested on (List Item Numbers)	Settings On Instrument Tested (As Per WP)	Test Results, ☒ indicates good for operation	Personnel Testing Equipment	Comments
Geonics EM61-M2	S/N 196090 (coil)	1-4	8 readings/s Std trailer mode	☐	Jim Coffman	small/med/large ISO response > response curves
				☐		
				☐		
				☐		

III. Problems Encountered / Corrective Actions Taken / Additional Comments.
explain in space below:

Seed responses compared with response curves - all instrument responses at or above response curve amplitudes.
Small ISO response curve: 10.8mV (53cm) / measured 35.8mV
medium ISO response curve: 60.2mV (63cm) / measured 184.4mV
large ISO response curve: 132.4mV (83cm) / measured 363.2mV

IV. Supervisor

Name and Signature:	Title/Company:	Date:

TETRA TECH NUS, INC.

Checklist for Daily Instrument Checks

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi, TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 5/28/11

Has the operator been checked for presence of metal?	Y	N	NA
Has the instrument been warmed-up?	Y	N	NA
Have the sensor positions been measured and recorded?	Y	N	NA
Has a static background and spike test been performed successfully?	Y	N	NA
Has the equipment function test been ~~performed~~ IVS with detection of all the test targets?	Y	N	NA
Have all loose cables been secured?	Y	N	NA
Has the EM61 been nulled (power on)?	Y		
Has the G-858 been set up according to manufacturer's specifications?	Y	N	NA
Were the data monitored during data collection for anything unusual?	Y	N	NA

TETRA TECH NUS, INC.

Checklist for Field Editing

Project Name: WALF Cabaniss RI
Project Location: Corpus Christi, TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 5/28/11

Have the following items been evaluated for correctness and edited if necessary:

Line numbers?	Y	N	NA
Start and end points?	Y	N	NA
Line direction?	Y	N	NA
Fiducial locations?	Y	N	NA

Have the data been examined for geophysical noise?	Y	N	NA
Have the data been examined for the presence of drop-outs and spikes?	Y	N	NA
Have the edited data been converted to the appropriate .xyz format?	Y	N	NA

If using magnetics, have the following steps been taken:

Examined base station data for any problems?	Y	N	NA
Performed diurnal correction to field magnetometer data?	Y	N	NA

Have the positional data been evaluated for accuracy and completeness?	Y	N	NA

TETRA TECH NUS, INC.

DAILY QUALITY CONTROL REPORT	
Contract Number:	Project: NALF Cabaniss RI
Location: Corpus Christi TX	Date: 5/27/11

List Features of Work and Equipment Used, Locations (areas surveyed), and List Personnel Present

EM61-MK2

WS 22 tests/checks. Baseline Test. IVS Collected, and data analyzed & compared with response curves. Small ISO response (14.8mV) consistent with response curve (15.2mV). Medium ISO & Large ISO greater response than response curve predictions. GPS QC check. Survey transects 24-13.

Rework Items Identified Today (Not Corrected by Close of Business)	Rework Items Corrected Today

Remarks/Describe any Idle or Downtime and/or Equipment Problems

Work stop by 2P for demo of suspect MEC to begin.

On behalf of the contractor, I certify that this report is complete and correct and the equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.	TT ~~ERT~~ Representative: James D. Coffman	Date: 5/27/11

Tetra Tech Quality Assurance

Quality Assurance Representative Remarks and/or Exceptions to the Report

Inspection of Field Activities Performed	
	Tetra Tech QA Representative ______ Date ______

TETRA TECH NUS, INC.

Checklist for Daily Instrument Checks

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 5/27/11

	Y	N	NA
Has the operator been checked for presence of metal?	Y	N	NA
Has the instrument been warmed-up?	Y	N	NA
Have the sensor positions been measured and recorded?	Y	N	NA
Has a static background and spike test been performed successfully?	Y	N	NA
Has the equipment function test been performed with detection of all the test targets?	Y	N	NA
Have all loose cables been secured?	Y	N	NA
Has the EM61 been nulled (power on)?	Y		
Has the G-858 been set up according to manufacturer's specifications?	Y	N	NA
Were the data monitored during data collection for anything unusual?	Y	N	NA

TETRA TECH NUS, INC.

Checklist for Field Editing

Project Name: NALF Cabaniss RI
Project Location: Corpus Christi TX
Name and Title: Jim Coffman / Project Geophysicist
Date: 5/27/11

Have the following items been evaluated for correctness and edited if necessary:

Line numbers?	Y	N	NA
Start and end points?	Y	N	NA
Line direction?	Y	N	NA
Fiducial locations?	Y	N	NA
Have the data been examined for geophysical noise?	Y	N	NA
Have the data been examined for the presence of drop-outs and spikes?	Y	N	NA
Have the edited data been converted to the appropriate .xyz format?	Y	N	NA

If using magnetics, have the following steps been taken:

Examined base station data for any problems?	Y	N	NA
Performed diurnal correction to field magnetometer data?	Y	N	NA
Have the positional data been evaluated for accuracy and completeness?	Y	N	NA

TETRA TECH NUS, INC.

DAILY INSTRUMENT	IVS REPORT

Project Name:	Project No:	Location:	Date:
NALF Cabaniss RI		Corpus Christi, TX	5/27/11

I. Test Plot Information

Item Number	Inert Item/Surrogate Description	Depth (inches)	Azimuth/ Inclination Angle(Degrees)	Comments
1	Large ISO	16	horizontal	pipe section
2	Medium ISO	8	"	" "
3	Aluminum Seed	4	"	1 inch diameter, 4" long pipe section
4	Small ISO	4	"	pipe section
5				
6				
7				
8				

West ↓ East

II. Instrument Information

Instrument Type/Manufacture	Instrument Serial Number	Test Plot Items Instrument Tested on (List Item Numbers)	Settings On Instrument Tested (As Per WP)	Test Results, ☒ indicates good for operation	Personnel Testing Equipment	Comments
Geonics EM61-MK2		1-4	8 reads/s std trailer mode	☒	Jim Coffman	Small ISO at expected response ~~medium &~~
S/N 196010 (coil)				☐		large ISO response greater than
S/N 021919-3 (electronics)				☐		expected response Aluminum seed
				☐		detected.

III. Problems Encountered / Corrective Actions Taken / Additional Comments.
explain in space below:

Seed responses compared with response curves - all instrument responses at or above response curve amplitudes.

Small ISO response curve: 10.8 mV (53 cm) | measured 14.80 mV
Medium ISO response curve: 60.2 mV (63 cm) | measured 187.30 mV
Large ISO response curve: 132.4 mV (83 cm) | measured 390.57 mV

IV. Supervisor

Name and Signature:	Title/Company:	Date:

Appendix C-6
DGM Project QC Summary

<u>DGM – PROJECT QC REPORT SUMMARY</u> – performed by Tetra Tech Project Geophysicist

<u>QC Checks and Measurement Performance</u>

1) **Personnel Qualifications –** Personnel employed in fieldwork and data processing and reporting met the experience level and SAP requirements of a Project Geophysicist for the duration of the fieldwork, and for data processing and reporting.
2) **WS # 22 QC Tests and Checks –** Tests and checks were documented to meet project objectives. The static spike interval on the May 28 test had minor exceedances for Sensor 2 (bottom sensor), that are attributed to small movements by the operator of the hand-held sensors above the spike item. Exceedances during this time interval were 1 percent of the data collected during that interval. The static spike interval on the June 5 test had more significant exceedances on Sensor 1 (top sensor), and data from this potentially problematic sensor were not used to avoid introducing potential false responses (anomalies) in the reported data.
3) **GPS accuracy –** Sub-meter accuracy category DGPS was utilized for positioning all project DGM data. Two control points were occupied daily to collect GPS data to assess DGM system accuracy. The coordinates for these two control points were established using RTK GPS operated by a professional surveyor. Comparison of control point coordinates to DGM GPS coordinates determined that generally approximately 1 meter accuracy or better was attained at the control points. During DGM surveying of the subject site, GPS data was monitored and judged to be acceptable based on DOP and numbers of satellites guidance levels provided in the SAP and given the project accuracy requirements for the data.
4) **IVS –** 100% of ISOs detected within 1 meter of their known locations with both EM61 and G-858G (magnetometer) instruments integrated with DGPS measurements performed by the operator that collected site data on a daily basis. Measured EM61 responses for ISOs exceeded response curve predictions for their corresponding depths. Tetra Tech Project Geophysicist approval before site data was collected.
5) **Blind Seed Detection –** A few seeds that were buried to serve as blind seeds were likely exhumed by feral pigs before DGM could be tested on these locations (pigs were seen moving about the site a few times during project performance). A Tetra Tech Geologist performed the detection check of the blind seeds during project performance so that if a problem was evident, correction and/or rechecking was practical while DGM surveying was mobilized. DGM data was emailed by the Tetra Tech Site Geophysicist to GIS personnel who plotted seed symbols from GPS coordinates provided by the UXO Team over top of the DGM data. No repeat blind seed checking was judged to be necessary for the project. Blind seed detections confirmed on Appendix E figures E-1 and E-2.
6) **Equipment Use –** Tetra Tech's Project Geophysicist used proper technique and equipment, and conformed to Tetra Tech SOPs during the performance of the DGM.
7) **Data Coverage and Usability –** Greater than 95% of usable data per line, no large data gaps, and actual survey line spacing and extent conformed to planned spacing. Data noise levels were evaluated during site work, and noise levels were determined to not compromise data usability.
8) **Field Documentation –** Proper field documentation (i.e. daily checklists and field notes) was recorded to track data and allow proper reporting after fieldwork completion.
9) **Data Processing –** Geosoft was utilized for final processing where coordinate conversion, and screening data for errors or unusable data was performed.
10) **Reporting –** General data appearance, blind seed detections, QC daily reports and checklists are complete, and were checked regularly during survey performance by Tetra Tech's Project Team utilizing Geosoft to help ensure report data would be usable. Geophysical report contains

required project elements - data maps and anomaly tables appear complete and accurately produced.

Appendix D
MEC Data Usability Assessment

APPENDIX D
DATA USABILITY ASSESSMENT –
QUALIFICATION AND CERTIFICATION OF SURVEY TEAM
NALF CABANISS
CORPUS CHRISTI, TEXAS

This table lists each member of the detector-aided surface survey team and the required certifications and training in order to demonstrate competency.

Name	Title/Role	Organizational Affiliation	Responsibilities	Education and/or Experience Qualifications
Ralph Brooks	UXO Project Manager	TtNUS	Supervises, coordinates, and performs analog UXO detector-aided surveying to clear all locations during field activities (UXO avoidance)	B.S. General Studies; Graduate, Navy EOD School - Indian Head, 25 years of military EOD experience, 10 years commercial UXO experience.
Syd Rogers	SUXOS	TtNUS	Supervised the conduct of all on-site UXO-related operations. Preparied daily reports of field activities. Conducted daily site safety briefings. Escorted non-UXO personnel in suspect MEC areas. Determined location and identification of suspect MEC. Conducted detector-aided surface surveys.	43 years of UXO experience that includes military EOD and commercial UXO experience in munitions response, and range clearance activities.
Pete Dummitt	UXOSO	TtNUS	Ensured that initial site-specific training is delivered for all field personnel before field activities begin that all safety control measures have been established. Ensured that all UXO-specific certifications are filed on site and are available for Navy inspection. Enforced personnel limits and safety exclusion zones. Conducted, documented, and reported safety inspections.	19 years of military EOD experience, and 18 years of commercial UXO experience in munitions response, and range clearance activities.
	UXOQC	TtNUS	Conducted quality control audits. Identified, documented and reported corrective actions.	
Jake Clement [1]	UXO Survey Team/Team Leader	TtNUS	Assist in the performance of the UXO-related survey activities under the direction of the SUXOS.	10 years of military EOD experience, and 15 years of commercial UXO experience in munitions response, and range clearance activities.

APPENDIX D
DATA USABILITY ASSESSMENT –
QUALIFICATION AND CERTIFICATION OF SURVEY TEAM
NALF CABANISS
CORPUS CHRISTI, TEXAS

Name	Title/Role	Organizational Affiliation	Responsibilities	Education and/or Experience Qualifications
Scott Roberts (1)	UXO Survey Team	TtNUS	Assist in the performance of the UXO-related survey activities under the direction of the SUXOS.	2 years of military EOD experience, and 15 years of commerical UXO experience in munitions response, and range clearance activities.
Bob Shauger (2)	UXO Survey Team/Team Leader(2)	TtNUS	Assist in the performance of the UXO-related survey activities under the direction of the SUXOS.	21 years of military EOD experience as well as 15 years UXO experience in munitions response and range clearance activities
Nick Brantley (2)	UXO Survey Team	TtNUS	Assist in the performance of the UXO-related survey activities under the direction of the SUXOS.	4 years of military EOD and commercial UXO experience in munitions response and range clearance activities
Shaun Woods (1)	UXO Survey Team	TtNUS	Assist in the performance of the UXO-related survey activities under the direction of the SUXOS.	5 years of UXO experience.
Frank Loney (2)	UXO Survey Team	TtNUS	Assist in the performance of the UXO-related survey activities under the direction of the SUXOS.	2 years of UXO experience.
Tory Smith (2)	UXO Survey Team	TtNUS	Assist in the performance of the UXO-related survey activities under the direction of the SUXOS.	2 years of UXO experience.
Jim Coffman	Project Geophysicist/Site Geophysicist	TtNUS	Performance of DGM	M.S. Geophysics / Geophysicist – 13 years.

1. UXO Survey Team during first Mobilization.
2. UXO Survey Team during second Mobilization.

Note: The SUXOS and UXOSO/QC were onsite for both Mobilizations.

SAP Worksheet No. 12 – Measurement Performance Criteria Table

Data Type	QC Sample and/or Activity to Assess Measurement Performance	Measurement Performance Criteria	Frequency	QC Result
UXO Detector-aided surface survey – Transects	Resurvey transect to perform a direct comparison to field data collected during detector-aided surface survey.	Detect all blind seeds Detect all MEC/MPPEH 20 mm and larger	Resurvey 25% of first four transects and after any failure, then 10% of remaining transects after four transects in a row pass QC. If any transect does not pass QC, UXO team will resurvey and another QC check will be performed.	**Passed** – 100% detection of seed all blind seed items. All transects passed QC check.
GPS Positional Data	GPS positioning - comparison with two known locations	Sub-meter	Twice Daily	**Acceptable** –GPS to QC control point coordinate comparison difference = 1 meter. Report documented.

Data Type	QC Sample and/or Activity to Assess Measurement Performance	Measurement Performance Criteria	Frequency	QC Result
Instrument Verification Strip (IVS)	Detection capabilities test of representative seed items	Vertical Comparison of detection response of Industry Standard Objects (ISOs) to established response curves (described in Worksheet No. 17) (Nelson et. Al, 2009). Horizontal Detection positioning within 1 meter horizontal accuracy.	Twice a day	**Passed** – 100% detection of seed items within 4-foot accuracy for both EM61-MK2 and G-858 instruments. Measured EM61 responses for ISOs exceeded response curve predictions for their corresponding depths.
Detector-aided surface survey	ISO buried blind to the geophysical team to evaluate detection capabilities in the survey area. Blind seeds buried in non-anomalous area pre-screened with detector-aided instrument	Detect all blind seeds	1 per ½ mile of transect	**Passed** – 100% detection of seed items within 4-foot accuracy for both EM61-MK2 and G-858 instruments
DGM	“	“	18	**Passed** – 100% detection of seed items within 4-foot accuracy for both EM61-MK2 and G-858 instruments

Data Type	QC Sample and/or Activity to Assess Measurement Performance	Measurement Performance Criteria	Frequency	QC Result
Geophysical Data Collection	Data capture	Minimize data dropouts and unusable data. 90% minimum of usable data per survey line	Daily	**Passed** – Greater than 90% usable data per survey line documented.
Geophysical Data Processing and Interpretation	Verify data are usable and accurate for the site	Minimize data dropouts and unusable data. 95% minimum of usable data per survey line	Daily	**Passed** – Greater than 95% usable data per survey line documented.
Anomaly Reacquisition	Search radius for reacquiring geophysical anomalies	Along-line accuracy of geophysical anomalies are within one meter of reacquired location	Resurvey 25% of anomalies during reacquisition in first four transects and after any failure, then 10% of anomalies during reacquisition in remaining transects after four transects in a row pass QC. If any transect does not pass QC, UXO team will conduct anomaly reacquisition of all anomalies in that transect and another QC check will be performed.	**Passed** – Along-line accuracy of all intrusive investigated anomalies were within one meter of reacquired locations.

Data Type	QC Sample and/or Activity to Assess Measurement Performance	Measurement Performance Criteria	Frequency	QC Result
Anomaly Intrusive Investigation	Resurvey anomaly to perform a direct comparison to field data collected.	Detect all metallic objects 20mm or larger.	Resurvey 25% of anomalies in first four transects and after any failure, then 10% of anomalies in remaining transects after four transects in a row pass QC. If any transect does not pass QC, UXO team will resurvey and another QC check will be performed.	**Passed** – QC of applicable intrusive investigation locations.[1]

(1) Two anomaly Intrusive investigation locations (299, 317) labeled burn/burial pits extended beyond the cut transect. The anomalies were cleared to a depth of 2 feet. Horizontal investigation was only performed to the edge of the cut transect.

SAP Worksheet No. 22 – Field Equipment Calibration, Maintenance, Testing, and Inspection Table

Field Equipment	Activity[1]	Frequency	Acceptance Criteria	Corrective Action	Responsible Person	SOP Reference[2]	QC Result
EM31, EM61-MK2, G-858G	Warm-up	Power on	5 Minutes	NA	Site Geophysicist	MRP SOP 03	**Passed** – Checklist (Report) documented
EM61-MK2 and EM31	Null/ Calibrations	Null: EM61 at power on Calibrations: per manufacturer recommendation	Per manufacturer recommendations	NA	Site Geophysicist	MRP SOP 03	**Passed** – Checklist (Report) documented

Field Equipment	Activity[1]	Frequency	Acceptance Criteria	Corrective Action	Responsible Person	SOP Reference[2]	QC Result
EM61-MK2, EM31, and G-858G	Record sensor positions	First day and configuration or equipment change	+/- 1 foot – EM31 +/- 2 inches – EM61-MK2, G-858G	NA	Site Geophysicist	MRP SOP 03	**Passed** – Checklist (Report) documented
EM61-MK2 and G-858G	Personnel test	Beginning of day	EM31: +/- 1 mS/m and 1 ppt EM61: +/- 2 mV, G-858G: +/- 2 nT	Remove interference source from operator	Site Geophysicist	MRP SOP 03	**Passed** – Checklist (Report) documented
EM61-MK2 and G-858G	Static background and static spike	Beginning of day or equipment change	Acceptance criteria determined from data review. Guidance Criteria: EM61: +/- 3 mV, G-858G: +/- 5 nT Spike: +/- 20% of standard item response	Fix or replace unit or filter noise – evaluate site noise for survey feasibility	Site Geophysicist	MRP SOP 03	**Passed** – Minor deviation Report documented
EM61-MK2 and G-858G	Pull-away test	First day on site and when there is a configuration or equipment change	Minimal effect	Increase distance of GPS to instrument	Site Geophysicist	MRP SOP 03	**Passed** – No effect of GPS equipment on geophysical instruments, Checklist (Report) documented
GPS	Positioning	Twice Daily	Accuracy: sub-meter HDOP <3, number	Wait for better signal, replace unit, or choose alternate location	Site Geophysicist/UXO Technician	MRP SOP 05	**Passed** – monitored during DGM collection and

Field Equipment	Activity(1)	Frequency	Acceptance Criteria	Corrective Action	Responsible Person	SOP Reference(2)	QC Result
			of satellites at least six	technique			documented
EM31	Baseline Test	Beginning, middle and end of the survey day	NA	NA	Site Geophysicist	MRP SOP 03	Performed, no correction needed
Magnetic Locator	Operational	Beginning of day and after battery change	Operating properly	Replace battery, replace instrument	UXO Technician	MRP SOP 01	Performed, no correction needed
All-Metal Detector	Calibration	Beginning of day	Detect inert surface segregate	Recalibrate, replace instrument	UXO Technician	MRP SOP 01	Performed, no correction needed

1 Activities may include calibration, verification, testing, and maintenance.
2 SOPs are contained in Appendix B of this MEC UFP-SAP.

GPS – Global Positioning System
HDOP – Horizontal Dilution of Precision
mS/m – Millisiemens per meter
mV – Millivolt
nT – nanoTesla
NA – Not Applicable
Ppt – parts per thousand
SOP – Standard Operating Procedure
UXO – Unexploded Ordnance

22.1 REGULAR TESTS FOR GEOPHYSICAL SURVEYING EQUIPMENT

Equipment/Electronics Warm-Up. This test minimizes sensor drift caused by thermal stabilization. Most instruments need a few minutes to warm up before data collection begins. All manufacturer instructions will be followed, or if none are given, data readings will be observed until they stabilize. Acceptance Criterion: Equipment Specific (typically 5 minutes). This test will be conducted each time the unit is started.

Equipment Null\Calibrations. The equipment will be calibrated according to manufacturer's recommendations prior to surveying, and the EM61-MK2 will be nulled when powered on.

Record Sensor Positions. The purpose of recording sensor positions is to document relative navigation and sensor offsets, detector separation, and detector heights above the ground surface. This information will ensure that the detector offset corrections and gradient calculations can be done correctly and that the surveys are repeatable. Acceptance Criterion: ±1 foot for EM31, ±2 inches for EM61-MK2 and G-858G. This test will be conducted at the beginning of the first day and after an equipment configuration change is made.

Personnel Test. This test ensures that survey personnel have removed all potential interference sources (metal) from their bodies. Common interference sources are ballpoint pens, steel-toed boots, or large metallic belt buckles, which can produce data anomalies similar to investigation targets. All personnel who will be coming near the sensor during survey operations should remove metallic items from themselves, and if this is not possible, readings should be monitored and recorded to judge the effect of the metallic items to meet the following acceptance criteria: EM61 ±2 mV, G-858G ±2 nT. This test will be conducted at the beginning of each day if the operator is wearing metallic items that could interfere with equipment operation.

Static Background and Static Spike (or Standard Response) Test. This test quantifies instrument background readings and electronic drift, locates potential interference spikes in the time domain, and determines impulse response and repeatability of the instrument to a standard test item (typically a 2-inch-diameter steel trailer hitch ball). Improper instrument function, the presence of local sources of ambient noise (such as EM transmissions from high-voltage electric lines), and faulty equipment are all potential causes of inconsistent non-repeatable readings. A minimum 3-minute static background test after instrument warm-up, followed by a 1-minute standard response test, followed by an additional

1-minute static background test will be performed. The Site Geophysicist must review the readings to confirm that the data are usable. Acceptance criteria will be determined from this data review. Guidance Criteria: Static Background Test EM61 ± 3 mV, G-858G ±5 nT; Static Response Test ±20 percent of standard item response after background correction. Ideally, the test data would meet the guidance criteria; however, in the event they do not, data must be evaluated to see if an equipment change is needed and whether the data are acceptable to achieve project goals. This test will be conducted with the EM61-MK2 and G-858G instruments at the beginning of each day and after equipment changes.

Pull-Away Test. This test demonstrates the effects of the navigational equipment. All equipment will be powered up and operating as it would be during the survey. Acceptance Criterion: document the effects of navigational equipment on geophysical readings. Effects should be small. The test will be performed before the geophysical survey begins and after an equipment configuration change is made.

GPS Positioning. The GPS will be tested twice daily by surveying two survey control points and comparing the GPS coordinates to the documented coordinates for the control points. Acceptance Criterion: Sub-meter. GPS survey instruments should also be closely monitored during field acquisition by using HDOP criteria, or as a minimum, the number of satellite signals being received. HDOP should normally be less than three to obtain high-quality results, and at least six satellites should also indicate high-quality results.

Latency is an issue when a separate GPS controller (from the geophysical controller) is used to acquire GPS data. If a separate controller is used, care will be taken to synchronize the clocks in both the GPS and geophysical units, and a test must be set up to measure the latency inherent in using two different accuracy clocks. The test will consist of positioning oneself over a linear metallic object (e.g., pipe) at several points and recording data with all of the survey equipment, and then repeating the same measurements using only the GPS equipment to compare the results and determine any necessary adjustment.

Baseline Test. This test is conducted in an area that has low background noise and no sources of anomalous response. The test line will be marked to facilitate data collection over exactly the same line each time the test is performed. The test will need to be conducted at the beginning, middle, and end of each day to check/correct the EM31-MK2 instrument drift (baseline shift in data values).

IVS Evaluation. This check will be performed using the EM61-MK2 and G-858G instruments to confirm ISO detections and response levels. This test data will be recorded at the beginning and end of each day along a survey line passing overtop of the IVS items, and also by detection of blind seeds in the production area.

SAP Worksheet No. 37 – Usability Assessment

Data Usability Assessment

The usability of the data directly affects whether project objectives can be achieved. The following characteristics will be evaluated at a minimum. The results of these evaluations will be included in the project report. To the extent required by the type of data being reviewed, the assessors will consult with other technically competent individuals to render sound technical assessments of these data characteristics:

Certification of Proper Operation of Detection and Positioning Systems

The project geophysicist, acting on behalf of the project team, will prepare a table listing planned calibration and QC checks, their occurrence and the results (acceptable or not acceptable) for each type of metal detector, geophysics instrument, and positioning system equipment that was used on the project will be prepared. Data collected by any improperly operating equipment will be identified. A determination will be made as to whether the affected data adversely impacted the ability to meet project objectives. If the project objectives have been adversely impacted, the TtNUS TOM will consult with the Navy RPM and other project team members, as necessary (determined by the Navy RPM), to develop appropriate corrective actions.

Qualification / Certification of Survey Team

The TtNUS TOM, acting on behalf of the project team, will prepare a table listing each member of the detector-aided surface sweep team and subsurface geophysics team, which will list required certifications and training and required demonstrations of competency. Any deviations will be identified. Data collected by team members not meeting the required training and demonstrations of competency will be identified. A determination will be made as to whether affected data impacted the ability to meet project objectives. If the project objectives have been adversely impacted, the TtNUS TOM will consult with the Navy RPM and other project team members, as necessary (determined by the Navy RPM), to develop appropriate corrective actions.

Coverage of Investigation Areas

A project scientist, identified by the TtNUS TOM and acting on behalf of the project team, will determine whether data were collected in all areas planned to be investigated. Data gaps will be identified. The TtNUS TOM will consult with the project team to determine the extent to which it is necessary to fill these data gaps in the RI phase.

Interpretation of Geophysical Data

A project scientist, acting on behalf of the project team, will analyze the geophysical interpretation and maps to check for completeness of anomaly interpretation (target picking), and whether acceptable anomaly selection criteria were applied in the interpretation of the data. Any deficiencies in anomaly interpretation will be identified, and their impact on the Project Quality Objective (PQOs) will be summarized.

Identify the personnel responsible for performing the usability assessment:

The TtNUS TOM, Project Geophysicist, and Project Scientist will be responsible for conducting the listed data usability assessments. The data usability assessment will be reviewed with the Navy RPM, and Texas Commission on Environmental Quality. The review will take place either in a face to face meeting or a teleconference depending on the extent of identified deficiencies. If no significant deficiencies are identified, the data usability assessment will simply be documented in the project report and reviewed during the normal document review cycle.

Describe the documentation that will be generated during usability assessment and how usability assessment results will be presented:

Written documentation will support the non-compliance estimated or rejected data results. The project report will identify and describe the data usability limitations and suggest re-surveying or other corrective actions, if necessary.

Usability Checklist Table			
Phase of Work	**Item to be checked/verified**	**Verified (Yes or No)**	**Comments or Deviations**
Pre-Survey	Qualification of Survey Team evaluated		
	Personnel reviewed and signed-off on relevant SAP section(s)		
Survey	QC evaluation of survey equipment (tests and checklists satisfactorily completed)		
	GSV met requirements specified in SAP		
	Conformance to SAP requirements and procedures for all survey work and rework (including documentation requirements), and all deficiencies documented		
	Coverage of Areas to be Investigated fulfilled and located within accuracy levels required for the RI		
	Interpretation and Summary of Geophysical Data satisfies SAP requirements and conformance with Data Processing Flowchart (Worksheet No. 17)		

APPENDIX K

MUNITIONS AND EXPLOSIVES OF CONCERN HAZARD ASSESSMENT

MEC HA Workbook v1.02

December-07

Overview

This workbook is a tool for project teams to assess explosive hazards to human receptors at munitions response sites (MRSs) following the Munitions and Explosives of Concern Hazard Assessment (MEC HA) methodology. The MEC HA allows a project team to evaluate potential explosive hazard associated with a site, given current site conditions, under various cleanup, land use activities, and land use control alternatives. A complete description of the methodology can be found in the MEC HA Guidance (Public Review Draft, November 2006). Please reference this guidance when completing the worksheets.

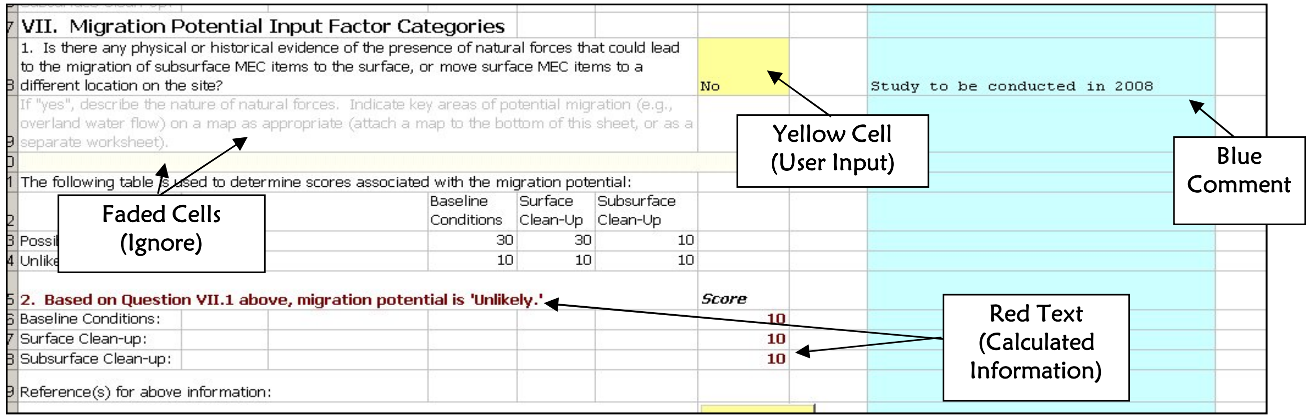
Instructions

1. Open this file. Enable macros if prompted to do so. This spreadsheet will not work if your security setting is set to 'high' or 'very high'. To change your security level, go to the menu bar and select Tools/Macro/Security. Then close and reopen this spreadsheet.
2. This MS Excel workbook contains 9 worksheets, designed to be used in order. After the '***Instructions***' sheet, the first 5 sheets ask for information about the following topics:

Summary Info - General information regarding the site.
Munitions/Explosive Info - MECs and bulk explosives present at the site.
Current and Future Activities - Current land use activites as well as planned future activities, if any.
Remedial-Removal Action - General information regarding remediation/removal alternatives being considered for the site.
Post-Response Land Use - Land use activities associated with the alternatives listed in the 'Remedial-Removal Action' sheet.

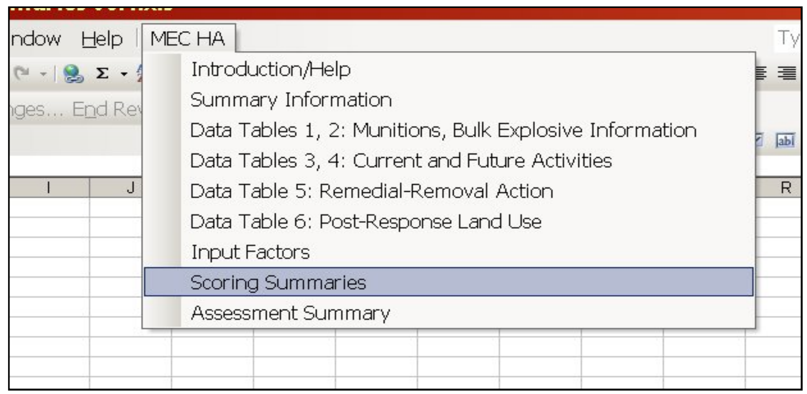
The remaining 3 sheets calculate and summarize the scores. The ***Input Factors*** sheet performs the Input Factor Score calculations, which are summarized in the ***Scoring Summaries*** sheet. The ***Hazard Level*** sheet presents the Hazard Level Category for current use activities, future use activities, and each response alternative based on the respective scores.

3. Starting with the ***Summary Info*** sheet, fill in any yellow cells. Some cells have drop-down lists from which you can select an answer. Select the cell. A down arrow to the right indicates that a drop-down list is available. Yellow buttons can be used to enter reference information. Blue cells can be used for any general comments you wish to make. Any faded cells can be ignored--these are questions that the spreadsheet has determined are not relevant for your situation.

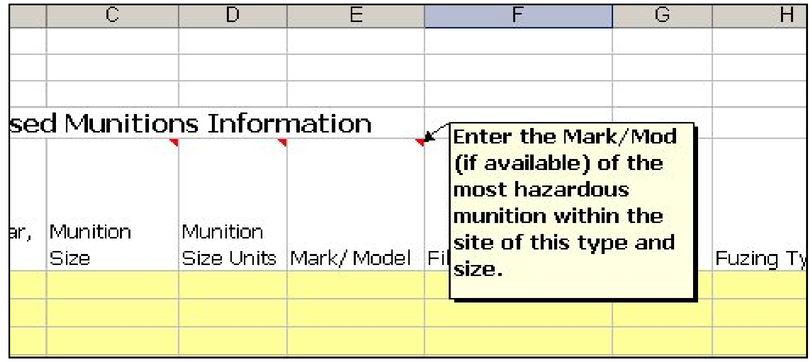


The computer will calculate information based on your inputs. Calculated information will appear as red text

4. The MEC HA menu bar can be used to navigate to different worksheets.



5. Small red triangles in the upper-right corners indicate that help text is available by putting the mouse cursor on that cell.



MEC HA Summary Information

		Comments
Site ID:	NALF CABANISS /Former Incinerator Disposal Site	
Date:	1/6/2011	

Please identify the single specific area to be assessed in this hazard assessment. From this point forward, all references to "site" or "MRS" refer to the specific area that you have defined.

A. Enter a unique identifier for the site:

Incinerator Disposal Site

Provide a list of information sources used for this hazard assessment. As you are completing the worksheets, use the "Select Ref(s)" buttons at the ends of each subsection to select the applicable information sources from the list below.

Ref. No.	Title (include version, publication date)	Comments
1	Malcolm Pirnie, Inc. , 2005. Final Preliminary Assessment (PA). April 2005	
2	Tetra Tech NUS, Inc., 2008. Work Plan (Field Sampling Plan, QAPP, MEC Work Plan, Health and Safety Plan) for the Incinerator Disposal Site. March 2008	
3	Tetra Tech NUS, Inc., 2009. Final Site Inspection Report for Incinerator Disposal Site, Naval Auxiliary Landing Field Cabaniss, Texas. September 2009	
4	Tetra Tech NUS, Inc., 2009. After Action Report for Munitions and Explosives of Concern Time Critical Removal Action Incinerator Disposal Site. May 2009	
5	Tetra Tech NUS, Inc., 2011. Sampling and Analysis Plan, MEC Remedial Investigation for the Incinerator Disposal Site. January 2011	
6	Tetra Tech NUS, Inc., 2010. Explosive Safety Submission, MEC Remedial Investigation for the Incinerator Disposal Site. February 2011	
7	Harmon Engineering and Testing. 1984. Initial Assessment Study, Prepared for: Naval Energy and Environmental Support Activity, 1984. Initial Assessment Study (IAS). February 1984	
8		
9		
10		
11		
12		

B. Briefly describe the site:

		Comments
1. Area (include units):	17 Acres	
2. Past munitions-related use:	OB/OD Area	The army used an 8 ft. long by 5 foot diameter boiler for the incineration of small ordnance items including .30 and .50 caliber small arms, flares, explosive cartridges from ejection seats, and possibly 80 mm rockets (likely 2.75 inch rockets) at a sanitary landfill facility located at NALF Cabaniss. The city of Corpus Christi also burned confiscated drug material in the boiler. Operations ceased at the site by 1980.
3. Current land-use activities (list all that occur):	Currently, the incinerator disposal site is closed and not used.	
4. Are changes to the future land-use planned?	No	
5. What is the basis for the site boundaries?	The Incinerator Disposal Site boundary is based on the 2008-2011 removal actions, geophysical survey and Remedial Investigation.	
6. How certain are the site boundaries?	Certain - based on 2011 MEC Remedial Investigation and previous investigations.	
Reference(s) for Part B:		

Malcolm Pirnie, Inc. , 2005. Final Preliminary Assessment (PA). April 2005
Tetra Tech NUS, Inc., 2008. Work Plan (Field Sampling Plan, QAPP, MEC Work Plan, Health and Safety Plan) for the Incinerator Disposal Site. March 2008
Tetra Tech NUS, Inc., 2009. Final Site Inspection Report for Incinerator Disposal Site, Naval Auxiliary Landing Field Cabaniss, Texas. September 2009
Tetra Tech NUS, Inc., 2009. After Action Report for Munitions and Explosives of Concern Time Critical Removal Action Incinerator Disposal Site. May 2009
Tetra Tech NUS, Inc., 2010. Sampling and Analysis Plan, MEC Remedial Investigation for the Incinerator Disposal Site. October 2010
Tetra Tech NUS, Inc., 2010. Explosive Safety Submission, MEC Remedial Investigation for the Incinerator Disposal Site. February 2011
Harmon Engineering and Testing. 1984. Initial Assessment Study, Prepared for: Naval Energy and Environmental Support Activity, 1984. Initial Assessment Study (IAS). February 1984

Select Ref(s)

C. Historical Clearances

1. Have there been any historical clearances at the site? Yes, surface clearance
2. If a clearance occurred:
   a. What year was the clearance performed? 2008

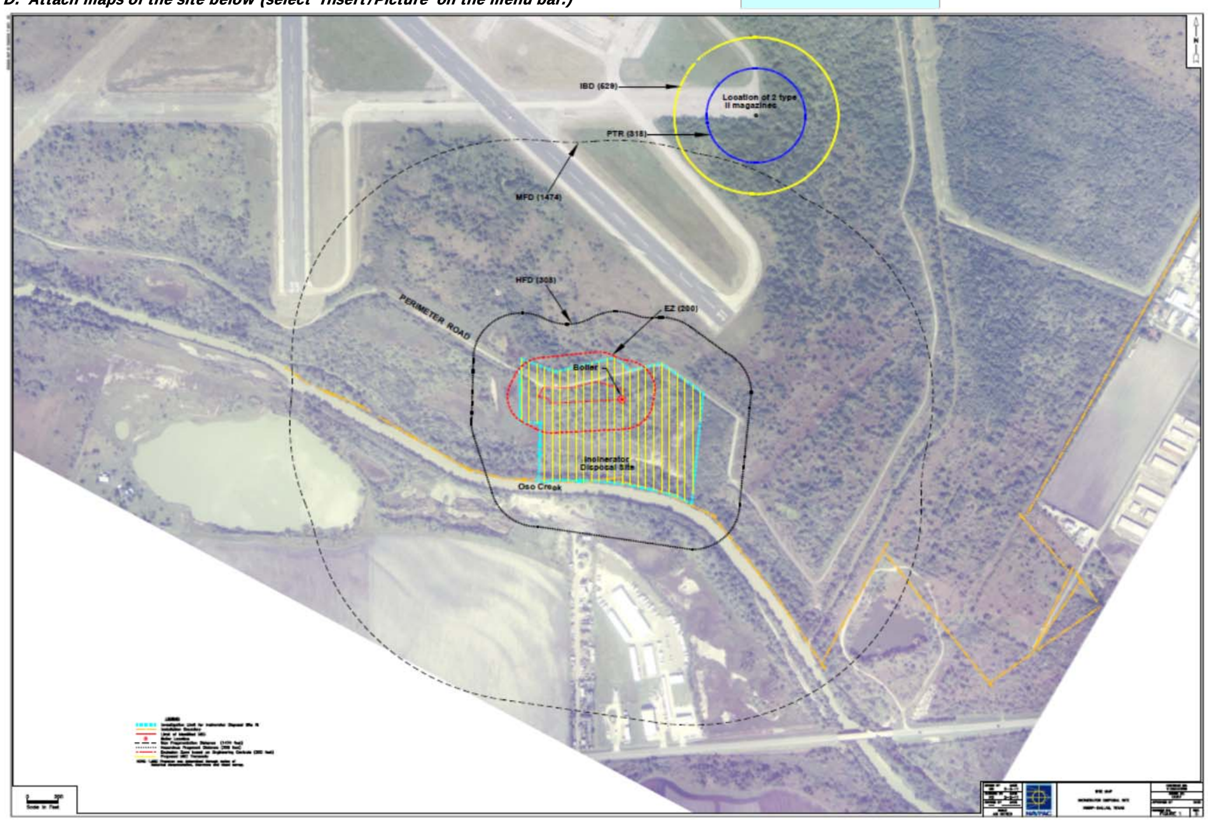
   b. Provide a description of the clearance activity (e.g., extent, depth, amount of munitions-related items removed, types and sizes of removed items, and whether metal detectors were used):

The TCRA activities included a detector-aided surface sweep with a removal operation at the Perimeter Road, the boiler area, and the area near Perimeter Road (450 feet west of the boiler area). No intrusive investigations were performed. Munitions recovered included: AN-Mk23 3 lbs. Practice bombs (2ea), 2.75 inch Rocket fins/venturi (5ea), 3.5 inch Rocket fuse (1ea), 3.5 inch Rocket (9ea)items were visible but left in place, 37 mm Smoke Canister (1ea), 40 mm Cartridge Casing (1ea), assorted small arms. A Schonstedt magnetometer was the primary survey instrument used for the operation.

Reference(s) for Part C:

Select Ref(s)

D. Attach maps of the site below (select 'Insert/Picture' on the menu bar.)




AN-MK23 Practice Bomb
AN-MK23 Practice Bomb
AN-MK23 Practice Bomb
2.75" Rocket War Head
AN-MK23 Practice Bomb (106ea)
2.75" Rocket War Head (5ea)
2.75" Rocket War Head (2ea)
AN-MK23 Practice Bomb
2.75" Rocket War Head (1ea)
Mk-23 Practice Bomb (1ea)
2.75" Rocket War Head
AN-MK23 Practice Bomb
Legend
MEC/MDEH Items
Study Area
150 75 0 150
Feet
DRAWN BY
DATE
CHECKED BY
DATE
SCALE
AS NOTED
NAVFAC
MEC/MDEH ITEMS
INCINERATOR AREA
NAS CORPUS CHRISTI
CORPUS CHRISTI, TEXAS
CONTRACT NUMBER
APPROVED BY
DATE
APPROVED BY
DATE
FIGURE NO.
REV
0

Site ID: **NALF CABANISS /Former Incinerator Disposal Site**
Date: **1/6/2011**

Cased Munitions Information

Item No.	Munition Type (e.g., mortar, projectile, etc.)	Munition Size	Munition Size Units	Mark/ Model	Energetic Material Type	Is Munition Fuzed?	Fuzing Type	Fuze Condition	Minimum Depth for Munition (ft)	Location of Munitions	Comments (include rationale for munitions that are "subsurface only")
1	Artillery	37	mm	UNKNOWN	High Explosive	UNK	Impact	UNK	0	Surface and Subsurface	The majority of items appear to have been buried or placed and were located at just below the surface from 0 to 2 feet.
2	Grenades	40	mm	M406	High Explosive	Yes	Impact	UNK	0	Surface and Subsurface	
3	Cartridge-actuated devices	3.27	inches	M397	High Explosive	No	UNK	UNK	0	Surface and Subsurface	
4	Rockets	2.75	inches	M229	High Explosive	No	UNK	UNK	0	Surface and Subsurface	
5	Bombs	3	lb	Mk 23	Spotting Charge	No	UNK	UNK	0	Surface and Subsurface	
6	Warhead	2.75	inches	M151	High Explosive	Yes	UNK	UNK	0	Surface and Subsurface	
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Reference(s) for table above:
Tetra Tech NUS, Inc., 2009. Final Site Inspection Report for Incinerator Disposal Site, Naval Auxiliary Landing Field Cabaniss, Texas. Septermber 2009
Tetra Tech NUS, Inc., 2009. After Action Report for Munitions and Explosives of Concern Time Critical Removal Action Incinerator Disposal Site. May 2009
Tetra Tech NUS, Inc., 2011. Sampling and Analysis Plan, MEC Remedial Investigation for the Incinerator Disposal Site. January 2011

Select Ref(s)

Bulk Explosive Information

Item No.	Explosive Type	Comments
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Reference(s) for table above:

Select Ref(s)

Site ID: **NALF CABANISS /Former Incinerator Disposal Site**
Date: **1/6/2011**

Activities Currently Occurring at the Site

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1	Security Patrol along perimeter road	2	100	**200**	0	
2	Tresspassing - Unauthorized Access	10	2	**20**	0	Reports of theft of local Police Department Equipment staged in the area. The Air Field is used for police training a few days each month.
3	Possible future ecological and remedial investigation activities.	10	500	**5,000**	2	
4	Maintenance Workers, Military and Civilian Personnel, Contractors.	20	50	**1,000**	0.1	
5						
6						
7						
8						
9						
10						
11						
12						
			Total Potential Contact Time (receptor hrs/yr):	**6,220**		
				Maximum intrusive depth at site (ft):	**2**	

Reference(s) for table above:

Tetra Tech NUS, Inc., 2009. Final Site Inspection Report for Incinerator Disposal Site, Naval Auxiliary Landing Field Cabaniss, Texas. Septermber 2009
Tetra Tech NUS, Inc., 2009. After Action Report for Munitions and Explosives of Concern Time Critical Removal Action Incinerator Disposal Site. May 2009
Tetra Tech NUS, Inc., 2011. Sampling and Analysis Plan, MEC Remedial Investigation for the Incinerator Disposal Site. January 2011

Select Ref(s)

Activities Planned for the Future at the Site (If any are planned: see 'Summary Info' Worksheet, Question 4)

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
			Total Potential Contact Time (receptor hrs/yr):			
				Maximum intrusive depth at site (ft):		

Reference(s) for table above:

Select Ref(s)

Site ID: **NALF CABANISS /Former Incinerator Disposal Site**
Date: **1/6/2011**

Planned Remedial or Removal Actions

Response Action No.	Response Action Description	Expected Resulting Minimum MEC Depth (ft)	Expected Resulting Site Accessibility	Will land use activities change if this response action is implemented?	What is the expected scope of cleanup?	Comments
1	Surface Removal	0.1	Limited Accessibility	No	cleanup of MECs located on the surface only	
2	Surface and Subsurface Removal	2	Limited Accessibility	No	cleanup of MECs located both on the surface and subsurface	Assume Removal effective to 2ft depth.
3	No Action	0	Limited Accessibility	No	No MEC cleanup	
4						
5						
6						

According to the 'Summary Info' worksheet, no future land uses are planned. For those alternatives where you answered 'No' in Column E, the land use activities will be assessed against current land uses.

Reference(s) for table above:

Tetra Tech NUS, Inc., 2008. Work Plan (Field Sampling Plan, QAPP, MEC Work Plan, Health and Safety Plan) for the Incinerator Disposal Site. March 2008
Tetra Tech NUS, Inc., 2009. Final Site Inspection Report for Incinerator Disposal Site, Naval Auxiliary Landing Field Cabaniss, Texas. Septermber 2009
Tetra Tech NUS, Inc., 2009. After Action Report for Munitions and Explosives of Concern Time Critical Removal Action Incinerator Disposal Site. May 2009
Tetra Tech NUS, Inc., 2011. Sampling and Analysis Plan, MEC Remedial Investigation for the Incinerator Disposal Site. January 2011
Tetra Tech NUS, Inc., 2010. Explosive Safety Submission, MEC Remedial Investigation for the Incinerator Disposal Site. February 2011

Select Ref(s)

Site ID: **NALF CABANISS /Former Incinerator Disposal Site**
Date: **1/6/2011**

This worksheet needs to be completed for each remedial/removal action alternative listed in the 'Remedial-Removal Action' worksheet that will cause a change in land use.

Land Use Activities Planned After Response Alternative #1: Surface Removal

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr):

Maximum intrusive depth at site (ft):

Reference(s) for table above:

Select Ref(s)

Land Use Activities Planned After Response Alternative #2: Surface and Subsurface Removal

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr):

Maximum intrusive depth at site (ft):

Reference(s) for table above:

Select Ref(s)

Land Use Activities Planned After Response Alternative #3: No Action

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr):

Maximum intrusive depth at site (ft):

Reference(s) for table above:

Select Ref(s)

Land Use Activities Planned After Response Alternative #4:

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr):

Maximum intrusive depth at site (ft):

Reference(s) for table above:

Select Ref(s)

Land Use Activities Planned After Response Alternative #5:

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr):

Maximum intrusive depth at site (ft):

Reference(s) for table above:

Select Ref(s)

Land Use Activities Planned After Response Alternative #6:

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr):

Maximum intrusive depth at site (ft):

Reference(s) for table above:

Select Ref(s)

Site ID: **NALF CABANISS /Former Incinerator Disposal Site**

Date: **1/6/2011**

Energetic Material Type Input Factor Categories

The following table is used to determine scores associated with the energetic materials. Materials are listed in order from most hazardous to least hazardous.

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
High Explosive and Low Explosive Filler in Fragmenting Rounds	100	100	100
White Phosphorus	70	70	70
Pyrotechnic	60	60	60
Propellant	50	50	50
Spotting Charge	40	40	40
Incendiary	30	30	30

The most hazardous type of energetic material listed in the 'Munitions, Bulk Explosive Info' Worksheet falls under the category 'High Explosive and Low Explosive Filler in Fragmenting Rounds'.

	Score
Baseline Conditions:	**100**
Surface Cleanup:	**100**
Subsurface Cleanup:	**100**

Location of Additional Human Receptors Input Factor Categories

1. What is the Explosive Safety Quantity Distance (ESQD) from the Explosive Siting Plan or the Explosive Safety Submission for the MRS? 1,434 feet
2. Are there currently any features or facilities where people may congregate within the MRS, or within the ESQD arc? No
3. Please describe the facility or feature.

MEC Item(s) used to calculate the ESQD for current use activities

Select MEC(s)

Item #4. Rockets (2.75inches, High Explosive)

The following table is used to determine scores associated with the location of additional human receptors (current use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

4. Current use activities are 'Outside of the ESQD arc', based on Question 2.'

	Score
Baseline Conditions:	**0**
Surface Cleanup:	**0**
Subsurface Cleanup:	**0**

5. Are there future plans to locate or construct features or facilities where people may congregate within the MRS, or within the ESQD arc?
6. Please describe the facility or feature.

MEC Item(s) used to calculate the ESQD for future use activities

Select MEC(s)

The following table is used to determine scores associated with the location of additional human receptors (future use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

7. Please answer Question 5 above to determine the scores.

	Score
Baseline Conditions:	
Surface Cleanup:	
Subsurface Cleanup:	

Comments

Treatment of MGFD 2.75 inch Rocket, M229. Public and all personnel,

Site Accessibility Input Factor Categories

The following table is used to determine scores associated with site accessibility:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Full Accessibility	No barriers to entry, including signage but no fencing	80	80	80
Moderate Accessibility	Some barriers to entry, such as barbed wire fencing or rough terrain	55	55	55
Limited Accessibility	Significant barriers to entry, such as unguarded chain link fence or requirements for special transportation to reach the site	15	15	15
Very Limited Accessibility	A site with guarded chain link fence or terrain that requires special equipment and skills (e.g., rock climbing) to access	5	5	5

Current Use Activities ***Score***

Select the category that best describes the site accessibility under the current use scenario:

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Future Use Activities

Select the category that best describes the site accessibility under the future use scenario:

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Reference(s) for above information:

Select Ref(s)

Response Alternative No. 1: Surface Removal

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Limited Accessibility'.

Baseline Conditions:	**15**
Surface Cleanup:	**15**
Subsurface Cleanup:	**15**

Response Alternative No. 2: Surface and Subsurface Removal

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Limited Accessibility'.

Baseline Conditions:	**15**
Surface Cleanup:	**15**
Subsurface Cleanup:	**15**

Response Alternative No. 3: No Action

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Limited Accessibility'.

Baseline Conditions:	**15**
Surface Cleanup:	**15**
Subsurface Cleanup:	**15**

Response Alternative No. 4:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 5:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Response Alternative No. 6:

Please enter site accessibility information in the 'Planned Remedial or Removal Actions' Worksheet to continue.

Baseline Conditions:
Surface Cleanup:
Subsurface Cleanup:

Potential Contact Hours Input Factor Categories

The following table is used to determine scores associated with the total potential contact time:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Many Hours	≥1,000,000 receptor-hrs/yr	120	90	30
Some Hours	100,000 to 999,999 receptor hrs/yr	70	50	20
Few Hours	10,000 to 99,999 receptor-hrs/yr	40	20	10
Very Few Hours	<10,000 receptor-hrs/yr	15	10	5

Current Use Activities:

Input factors are only determined for baseline conditions for current use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: **6,220** receptor hrs/yr

Based on the table above, this corresponds to a input factor score for baseline conditions of: **15** Score

Future Use Activities:

Input factors are only determined for baseline conditions for future use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: receptor hrs/yr

Based on the table above, this corresponds to a input factor score of: Score

Response Alternative No. 1: Surface Removal

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **6,220**

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions: **15**

Surface Cleanup: **10**

Subsurface Cleanup: **5**

Response Alternative No. 2: Surface and Subsurface Removal

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **6,220**

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions: **15**

Surface Cleanup: **10**

Subsurface Cleanup: **5**

Response Alternative No. 3: No Action

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **6,220**

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions: **15**

Surface Cleanup: **10**

Subsurface Cleanup: **5**

Response Alternative No. 4:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: ***Score***

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Response Alternative No. 5:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: **Score**

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Response Alternative No. 6:

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Total Potential Contact Time

Based on the table above, this corresponds to input factor scores of: **Score**

Baseline Conditions:

Surface Cleanup:

Subsurface Cleanup:

Amount of MEC Input Factor Categories

The following table is used to determine scores associated with the Amount of MEC:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Target Area	Areas at which munitions fire was directed	180	120	30
OB/OD Area	Sites where munitions were disposed of by open burn or open detonation methods. This category refers to the core activity area of an OB/OD area. See the "Safety Buffer Areas" category for safety fans and kick-outs.	180	110	30
Function Test Range	Areas where the serviceability of stored munitions or weapons systems are tested. Testing may include components, partial functioning or complete functioning of stockpile or developmental items.	165	90	25
Burial Pit	The location of a burial of large quantities of MEC items.	140	140	10
Maneuver Areas	Areas used for conducting military exercises in a simulated conflict area or war zone	115	15	5
Firing Points	The location from which a projectile, grenade, ground signal, rocket, guided missile, or other device is to be ignited, propelled, or released.	75	10	5
Safety Buffer Areas	Areas outside of target areas, test ranges, or OB/OD areas that were designed to act as a safety zone to contain munitions that do not hit targets or to contain kick-outs from OB/OD areas.	30	10	5
Storage	Any facility used for the storage of military munitions, such as earth-covered magazines, above-ground magazines, and open-air storage areas.	25	10	5
Explosive-Related Industrial Facility	Former munitions manufacturing or demilitarization sites and TNT production plants	20	10	5

Select the category that best describes the ***most hazardous*** amount of MEC: ***Score***

OB/OD Area

Baseline Conditions:	**180**
Surface Cleanup:	**110**
Subsurface Cleanup:	**30**

Minimum MEC Depth Relative to the Maximum Intrusive Depth Input Factor Categories

Current Use Activities

The shallowest minimum MEC depth, based on the 'Cased Munitions Information' Worksheet: **0** ft

The deepest intrusive depth: **2** ft

The table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240	150	95
Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.	240	50	25
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	150	N/A	95
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.	50	N/A	25

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth will overlap after cleanup. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.' For 'Current Use Activities', only Baseline Conditions are considered. **240** ***Score***

Future Use Activities

Deepest intrusive depth: ft

Not enough information has been entered to determine the input factor category. ***Score***

Response Alternative No. 1: Surface Removal

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0.1** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **2** ft

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'

	Score
Baseline Conditions:	
Surface Cleanup:	**150**
Subsurface Cleanup:	

Response Alternative No. 2: Surface and Subsurface Removal

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **2** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **2** ft

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'

	Score
Baseline Conditions:	
Surface Cleanup:	
Subsurface Cleanup:	**95**

Response Alternative No. 3: No Action

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **2** ft

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'

	Score
Baseline Conditions:	**240**
Surface Cleanup:	
Subsurface Cleanup:	

Response Alternative No. 4:

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

	Score
Baseline Conditions:	
Surface Cleanup:	
Subsurface Cleanup:	

Response Alternative No. 5:

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft

Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

	Score
Baseline Conditions:	
Surface Cleanup:	
Subsurface Cleanup:	

Response Alternative No. 6:
Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): ft
Not enough information has been entered in the 'Planned Remedial or Removal Actions' Worksheet. Please complete the table before returning to this section.

Maximum Intrusive Depth ft

Not enough information has been entered to calculate this input factor.

	Score
Baseline Conditions:	
Surface Cleanup:	
Subsurface Cleanup:	

Migration Potential Input Factor Categories

Is there any physical or historical evidence that indicates it is possible for natural physical forces in the area (e.g., frost heave, erosion) to expose subsurface MEC items, or move surface or subsurface MEC items? Yes

If "yes", describe the nature of natural forces. Indicate key areas of potential migration (e.g., overland water flow) on a map as appropriate (attach a map to the bottom of this sheet, or as a separate worksheet).

Erosion

Possible heavy rain and hurricane strength winds.

The following table is used to determine scores associated with the migration potential:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Possible	30	30	10
Unlikely	10	10	10

Based on the question above, migration potential is 'Possible.'

	Score
Baseline Conditions:	**30**
Surface Cleanup:	**30**
Subsurface Cleanup:	**10**

Reference(s) for above information:
Malcolm Pirnie, Inc. , 2005. Final Preliminary Assessment (PA). April 2005
Tetra Tech NUS, Inc., 2008. Work Plan (Field Sampling Plan, QAPP, MEC Work Plan, Health and Safety Plan) for the Incinerator Disposal Site. March 2008
Tetra Tech NUS, Inc., 2011. Sampling and Analysis Plan, MEC Remedial Investigation for the Incinerator Disposal Site. January 2011
Tetra Tech NUS, Inc., 2010. Explosive Safety Submission, MEC Remedial Investigation for the Incinerator Disposal Site. February 2011
Harmon Engineering and Testing. 1984. Initial Assessment Study, Prepared for: Naval Energy and Environmental Support Activity, 1984. Initial Assesment Study (IAS). February 1984

Select Ref(s)

MEC Classification Input Factor Categories

Cased munitions information has been inputed into the 'Munitions, Bulk Explosive Info' Worksheet; therefore, bulk explosives do not comprise all MECs for this MRS.

The 'Amount of MEC' category is 'OB/OD Area'.

Has a technical assessment shown that MEC in the OB/OD Area is DMM? Yes
Are any of the munitions listed in the 'Munitions, Bulk Explosive Info' Worksheet: Yes

- Submunitions
- Rifle-propelled 40mm projectiles (often called 40mm grenades)
- Munitions with white phosphorus filler
- High explosive anti-tank (HEAT) rounds
- Hand grenades
- Fuzes
- Mortars

At least one item listed in the 'Munitions, Bulk Explosive Info' Worksheet was identified as 'fuzed'.

The following table is used to determine scores associated with MEC classification categories:

Fuzed DMM Special Case	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
UXO Special Case	180	180	180
UXO	110	110	110
Fuzed DMM Special Case	105	105	105
Fuzed DMM	55	55	55
Unfuzed DMM	45	45	45
Bulk Explosives	45	45	45

Based on your answers above, the MEC classification is 'Fuzed DMM Special Case'.

	Score
Baseline Conditions:	**105**
Surface Cleanup:	**105**
Subsurface Cleanup:	**105**

MEC Size Input Factor Categories

The following table is used to determine scores associated with MEC Size:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Small	Any munitions (from the 'Munitions, Bulk Explosive Info' Worksheet) weigh less than 90 lbs; small enough for a receptor to be able to move and initiate a detonation	40	40	40
Large	All munitions weigh more than 90 lbs; too large to move without equipment	0	0	0

Based on the definitions above and the types of munitions at the site (see 'Munitions, Bulk Explosive Info' Worksheet), the MEC Size Input Factor is: Small

	Score
Baseline Conditions:	**40**
Surface Cleanup:	**40**
Subsurface Cleanup:	**40**

Scoring Summary

Site ID:	NALF CABANISS /Former Inciner	a. Scoring Summary for Current Use Activities	
Date:	1/6/2011	Response Action Cleanup:	No Response Action
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Outside of the ESQD arc	0
III. Site Accessibility			
IV. Potential Contact Hours		<10,000 receptor-hrs/yr	15
V. Amount of MEC		OB/OD Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential		Possible	30
VIII. MEC Classification		Fuzed DMM Special Case	105
IX. MEC Size		Small	40
		Total Score	710
		Hazard Level Category	3

Site ID:	NALF CABANISS /Former Inciner	b. Scoring Summary for Future Use Activities	
Date:	1/6/2011	Response Action Cleanup:	No Response Action
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors			
III. Site Accessibility			
IV. Potential Contact Hours			
V. Amount of MEC		OB/OD Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth			
VII. Migration Potential		Possible	30
VIII. MEC Classification		Fuzed DMM Special Case	105
IX. MEC Size		Small	40
		Total Score	455
		Hazard Level Category	4

Site ID:	NALF CABANISS /Former Inciner	c. Scoring Summary for Response Alternative 1: Surface Removal	
Date:	1/6/2011	Response Action Cleanup:	cleanup of MECs located on the surface only
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Outside of the ESQD arc	0
III. Site Accessibility		Limited Accessibility	15
IV. Potential Contact Hours		<10,000 receptor-hrs/yr	10
V. Amount of MEC		OB/OD Area	110
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	150
VII. Migration Potential		Possible	30
VIII. MEC Classification		Fuzed DMM Special Case	105
IX. MEC Size		Small	40
		Total Score	560
		Hazard Level Category	3

Site ID:	NALF CABANISS /Former Incinerd. Scoring Summary for Response Alternative 2: Surface and Subsurface Removal		
Date: 1/6/2011		Response Action Cleanup:	cleanup of MECs located both on the surface and subsurface
Input Factor	**Input Factor Category**		**Score**
I. Energetic Material Type	High Explosive and Low Explosive Filler in Fragmenting Rounds		100
II. Location of Additional Human Receptors	Outside of the ESQD arc		0
III. Site Accessibility	Limited Accessibility		15
IV. Potential Contact Hours	<10,000 receptor-hrs/yr		5
V. Amount of MEC	OB/OD Area		30
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth	Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.		95
VII. Migration Potential	Possible		10
VIII. MEC Classification	Fuzed DMM Special Case		105
IX. MEC Size	Small		40
		Total Score	**400**
		Hazard Level Category	**4**

Site ID:	NALF CABANISS /Former Incinere. Scoring Summary for Response Alternative 3: No Action		
Date: 1/6/2011		Response Action Cleanup:	No MEC cleanup
Input Factor	**Input Factor Category**		**Score**
I. Energetic Material Type	High Explosive and Low Explosive Filler in Fragmenting Rounds		100
II. Location of Additional Human Receptors	Outside of the ESQD arc		0
III. Site Accessibility	Limited Accessibility		15
IV. Potential Contact Hours	<10,000 receptor-hrs/yr		15
V. Amount of MEC	OB/OD Area		180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth	Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.		240
VII. Migration Potential	Possible		30
VIII. MEC Classification	Fuzed DMM Special Case		105
IX. MEC Size	Small		40
		Total Score	**725**
		Hazard Level Category	**3**

Site ID:	NALF CABANISS /Former Incinerf. Scoring Summary for Response Alternative 4:		
Date: 1/6/2011		Response Action Cleanup:	
Input Factor	**Input Factor Category**		**Score**
I. Energetic Material Type	High Explosive and Low Explosive Filler in Fragmenting Rounds		
II. Location of Additional Human Receptors	Outside of the ESQD arc		
III. Site Accessibility			
IV. Potential Contact Hours			
V. Amount of MEC	OB/OD Area		
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth			
VII. Migration Potential	Possible		
VIII. MEC Classification	Fuzed DMM Special Case		
IX. MEC Size	Small		
		Total Score	
		Hazard Level Category	

Site ID:	NALF CABANISS / Former Inciner	b. Scoring Summary for Response Alternative 5:	
Date:	1/6/2011	Response Action Cleanup:	
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	
II. Location of Additional Human Receptors		Outside of the ESQD arc	
III. Site Accessibility			
IV. Potential Contact Hours			
V. Amount of MEC		OB/OD Area	
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth			
VII. Migration Potential		Possible	
VIII. MEC Classification		Fuzed DMM Special Case	
IX. MEC Size		Small	
		Total Score	
		Hazard Level Category	

Site ID:	NALF CABANISS / Former Inciner	b. Scoring Summary for Response Alternative 6:	
Date:	1/6/2011	Response Action Cleanup:	
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	
II. Location of Additional Human Receptors		Outside of the ESQD arc	
III. Site Accessibility			
IV. Potential Contact Hours			
V. Amount of MEC		OB/OD Area	
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth			
VII. Migration Potential		Possible	
VIII. MEC Classification		Fuzed DMM Special Case	
IX. MEC Size		Small	
		Total Score	
		Hazard Level Category	

MEC HA Hazard Level Determination		
Site ID: Incinerator Disposal Site		
Date: 1/6/2011		
	Hazard Level Category	Score
a. Current Use Activities	3	710
b. Future Use Activities	4	455
c. Response Alternative 1: Surface Removal	3	560
d. Response Alternative 2: Surface and Subsurface Removal	4	400
e. Response Alternative 3: No Action	3	725
f. Response Alternative 4:		
g. Response Alternative 5:		
h. Response Alternative 6:		
Characteristics of the MRS		
Is critical infrastructure located within the MRS or within the ESQD arc?		
Are cultural resources located within the MRS or within the ESQD arc?		
Are significant ecological resources located within the MRS or within the ESQD arc?		